Fear of Flight:

Expanded Presence and Inter-sensory Gesture in Multimedia Performance

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A Dissertation Submitted in Partial Fulfillment of the

Requirements for the Degree of Doctor of Philosophy

in the Computer Music and Multimedia Program

Providence, Rhode Island

May 2013

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This Dissertation by Freida Abtan is accepted in its present form by the Department of Music as satisfying the dissertation requirement for the degree of Doctor of Philosophy

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CURRICULUM VITAE

EDUCATION

2007-2013 Brown University, PhD, Computer Music and Multimedia
2005- 2007 Université de Montréal, M. Mus, Electroacoustic Composition
2002-2005 Concordia University, BFA, Digital Image & Sound, Electroacoustic Studies
1994-1999 University of Waterloo, B. Math (hon), Computer Science, Combinatorics & Optimization

WORK EXPERIENCE

Lecturer, Goldsmiths University of London January 2013 - Present
Part-time Lecturer, Concordia University September 2010 – December 2011
Teaching Assistant, Brown University January 2008 – May 2010
Instructor, Studio XX March-April 2007
Research Assistant to Sha Xin Wei, Concordia University / Hexagram September 2005 – August 2007

PRIZES AND AWARDS

2012 Recipient of a Brown University Dissertation Completion Fellowship
2011 Recipient of a SOCAN Concert-Music Composer Outreach Residencies Grant
2010 Recipient of a Brown University Creative Arts Council Grant for artistic production research
2009 Recipient of the Social Sciences and Humanities Research Council of Canada (SSHRC) Canada Graduate Scholarship for Doctoral degree scholars
2009 Recipient of the Fonds Quebecois de Recherche sur la Société de la Culture (FQRSC) Quebec Graduate Scholarship for Doctoral degree scholars
2008 First runner up for the Desjardins Scholarship in the category of Fine Arts / Media Arts
2008 Big Muddy Film Festival, Fracas for which I created the soundtrack received the Audience Choice Award for Best Experimental Film/Video, 2008
2007 Recipient of a Canada Council Travel Grant to attend the 2007 Istanbul Art Bienniale in Turkey
2007 Recipient of a Brown University Entrance Fellowship
2006 Recipient of the Social Sciences and Humanities Research Council of Canada (SSHRC) Canada Graduate Scholarship for Master's degree scholars
2004 Winner of the Mills Purchase Prize in Fine Art (under the category of Painting)
2004 One of the top 10 finalists for JTTP Times Play, Electroacoustic Composers Competition.

SELECTED PUBLICATIONS

Freida Abtan, Shane Turner. "Improvisation and the subconscious mind." Leonardo Music Journal (On Improvisation). MIT Press, December 2010.

Freida Abtan, "The Illusion of Pure Music." Intransitive Web Magazine, August 19 2010.

Freida Abtan "A Phenomenological, Time-based Approach to Videomusic Composition. " In: Proceedings of the Toronto Electroacoustic Symposium 2009, CEC – eContact! 11.4, December 2009.

David Birnbaum, Freida Abtan, Sha Xin Wei and Marcelo M. Wanderley. "Mapping and Dimensionality of a Cloth-based Sound Instrument." In: Proceedings of the 4th Sound and Music Computing Conference (SMC'07), Lefkada, Greece, July 2007.

Freida Abtan, Shane Turner. "Steam and Fiction – artist statement." In: Collaborative Spaces, Vague Terrain Online Journal of Digital Culture 17, 2010.

Freida Abtan. "heartstrings: a string quartet." In: Sample Culture, Vague Terrain Online Journal of Digital Culture 7, 2007.

Freida Abtan. "An Evening with Sound and Radio Artist Christian Calon. " In: Electroacoustic Activities in Quebec, CEC - eContact! 6.2, 2003..

SELECTED RECORDINGS

the hands of the dancer /the temple of the dreamer (56:50-2010, Audio CD, 21:49-2010, Video DVD)
Released on Finite State Recordings / Jnana Records, February 2011.

Leonardo Music Journal – On Improvisation – Dreams of Waking (7 :02 – 2010)
Published in Leonardo Music Journal, Dec 2010. Credited to f.a.s.t. : Freida Abtan Shane Turner.

Steam and Fiction (20:25 – 2010, 256k mp3 release)
Published in "Collaborative Spaces", *Vague Terrain Online Journal of Digital Culture* 17 alongside an artist statement. Credited to f.a.s.t. : Freida Abtan Shane Turner.

Ostinato 11 – Freida Abtan vs. Joda Clément (28 :29 – 2008)
Ostinato 20 – Orpheus (19 :15 – 2008)
Ostinato 24 – Untitled (18 :12 – 2008)
Published by ORAL records. 'Freida Abtan vs. Joda Clément recorded at Mutek Festival, Montreal, 2006. 'Orpheus' recorded at the Epoxy Festival, Montreal, 2007. 'Untitled' recording Montreal, 2007.

Heartstrings (26 :02 – 2007, 256k mp3 release)
Published in "Sample Culture", *Vague Terrain Online Journal of Digital Culture* 7 along with an artist statement.

Subtle Movements (71 :27 – 2007, Audio CD)
Solo Audio CD Released on United Jnana, distributed internationally by Revolver.

Cache 2004 – Lightness and Weight (6 :42 – 2006)
"Lightness and Weight" appears on *Cache 2004*, Canadian Electroacoustics Community (CEC).

SELECTED PRESENTATIONS

"Gesture and Movement in Videomusic."
International Festival for Innovations in Music Production and Composition, Leeds, UK, April 2012.

"Temporal and Spatial Strategies For Sound and Video."
Invited artist talk, New Adventures in Sound Art, Toronto, Canada, November 11 2011.

"Reactive and Fixed Media."
Invited artist talk, DIEM Royal Academy of Music, Aarhus, Denmark, November 15 2010

"Between Popular and Academic Electronic Music."
The UnConference at *ICMC 2010*, Stonybrook University, Long Island, NY, USA, May 4 2010.

"Reactive and Fixed Media."
Stonybrook Department of Music, SUNY Stony Brook University, NY, USA, Nov 1 2009.

"Strategies for Spatial and Temporal Re-mapping Leveraging Pre-rendered Material."

Cycling74 Expo: *Science Fair*, San Francisco, CA, USA, May 2009.

"Mapping and Dimensionality of a Cloth-Based Sound Instrument."
Sound and Music Computing Conference 2007, Lefkada, Greece, July 12, 2007.

"Contact." with Karmen Franitova
Dancing the Virtual, Montreal, Canada, May 2005.

"Open Source Software and Culture in Electronic Music Production."
Artavistic, Montreal, Canada, September 2005.
In and Out of the Studio, Montreal, Canada, July 2005.

SELECTED EXHIBITIONS

Multimedia Productions

Fear of Flight (1:00:00 – 2012, for Electroacoustic Music, Dance, Costumes, and Surround Video)
Hexagram Black Box, Concordia University, Montreal, Quebec, Canada, April 19-21 2012

Bird Woman (12:00 – 2009, for Electroacoustic Music, Solo Dancer, Costume, and Video)
Grant Recital Hall, Providence, RI, USA, May 26 2009
BUME Festival, Providence, RI, USA, October 30 2009

heartstrings : a string quartet (30:00 - 2005, for Electroacoustic Music, String Quartet, Video, and Sets)
Pixilerations Festival, Brown University, Providence, USA, September 29 2007
Send + Receive Festival, Winnipeg, Canada, May 13 2007
Signal and Noise Festival, VideoIn, Vancouver, Canada, April 29 2005
Tabernacle! Sound in Architecture Festival, Montreal, Canada, September 30 2005

VideoMusic

Flight of birds (30:00 – 2010, Videomusic)
International Festival for Innovations in Music Production and Composition, UK, April 27 2012
SOUNDplay Festival, New Adventures in Sound Art, Toronto, Canada, November 8 2011
Centre Regart, Lévis, Québec, Canada, December 11 2010
Staller Center, SUNY Stonybrook, Stonybrook, NY, USA, November 22 2010
SOUNDplay Festival, New Adventures in Sound Art, Toronto, Canada, October 30 2010

The death of a muse – with Erin Gee (7:29 – 2009, Videomusic)
AKA's Video Exchange, toured: Peterborough, Toronto/Guelph/London/North Bay/Syracuse 2009
Z-Axis, Paved Arts Center, Saskatoon, SK, Canada, June 5-July 30 2009

The hands of the dancer (21:49 – 2008, Videomusic)
Solo Show, Fleishman Gallery, Toronto, Canada, January - February 2012
DIEM, Royal Academy of Music, Aarhus, Denmark, November 15 2010
2 Visages de la Musique Électroacoustique, Musique et Recherche, Brussels, Belgium, May 20 2010
International Computer Music Conference, McGill University, Montreal, Canada, August 17 2009
Box Salon, The Rivoli, Toronto, ON, Canada, July 24 2009
Exhibit Festival of Digital Culture, Venezio, Italy, July 3 2009
Festival International ZEMOS98, Sevilla, Spain, 22–28 March 2009
Princeton University, Princeton, NJ, USA, February 17 2009
Steel Ball, Zaphod Beeblebrox, Ottawa, ON, Canada, December 20 2008
ART TECH MEDIA, Vimcorso, Cordoba, Spain, November 26-28 2008
(dis)Embodied Touch, McGuffey Art Center, Charlottestown, Virginia, USA, November 21 2008
Pixilerations Festival, Brown University, Providence, RI, USA, October 7 2007

Yellow Flowers : a study (5 :09 – 2006, Videomusic)
Factory Works Screening Series, The Factory, Hamilton, ON, Canada, October 15 2008
SOUNDplay, New Adventures in Sound Art, Toronto, Canada, October 3-15 2008
Analogue vs. Digital, 4th Fair of Culture, Zagreb, Croatia, 13-16 December 2007
NWEAMO Festival, New York City, USA, October 27 2007
NWEAMO Festival, Boulder, USA, October 19 2007
Pixilerations Festival - Ornament, Cable Car Cinema, Providence, USA, October 3 2007
Friesland Media Art Festival, Friesland, Netherlands, September 20-30 2007
International Computer Music Conference - Immersive Sound, Copenhagen, Denmark, August 2007

Multi-Channel Diffusion Work

She's swinging her hammer (7 :00 - 2011 8 channel)
International Computer Conference 2012, Ljubljana, Slovenia, September 14 2012
Open Ears Festival, Kitchener, ON, Canada, April 30 2011

Visual Work (including Digital Print)

***Solo Show**: Stills and Motion* (42" x 22.5" – 2003, 6 Digital Prints)
Solo Show, Fleishman Gallery, Toronto, Canada, January - February 2012

Claire 2 (4'8" x 3' – 2003, Oil on Canvas)
Show Off, Leonard & Bina Ellen Gallery, Montreal, Canada, April - May 2004

Several versions of the end of the world (Series of 9, 11" x 17" - 2002, Digital Print)
Twin Dogs: A multiples show, Art of the Union, Toronto, Canada, June 2002

*Select Digital Prints (*assorted sizes – 1998 - 2000, Digital Prints on Assorted Paper Media)
Solo Show: Analog to Digital, KOR Gallery, Kitchener, Canada, June 2000

Views from a window (Series of 3, 6" x 4" - 1999, Multimedia)
Miniature Show, Isolated Ground Gallery, Kitchener, Canada, November-December 1999

Soundtracks

The Carnie - Janet Cardiff and George Bures Miller (2010, Multimedia Installation)
Lightness and Weight – 6 :42 (2006) is used as the soundtrack music.
Solo Show, Luhring Augustine Gallery, New York City, NY, USA

A Murder of Crows - Janet Cardiff and George Bures Miller (2008, Multimedia Installation)
Lightness and Weight – 6 :42 (2004) is used as the soundtrack music.
Solo show, Park Avenue Armoury, New York, New York, USA, August 3 – September 9 2012
Kiasma – Museum of Contemporary Art, Helsinki, Finland, February 17 – May 20 2012
Solo show: the Sleep of Reason Produces Monsters, Art Gallery of Alberta, Edmonton, Canada, 2010
Solo show, Nationalgalerie im Hamburger Bahnhof, Museum für Gegenwart, Berlin, Germany, 2009
16th Sydney Bienniale : Revolution – Forms that Turn, Sydney, Australia, June 18 – Sept 7, 2008

The Killing Machine and Other Stories - Janet Cardiff and George Bures Miller (2007, Multimedia Installation)
Heartstrings – 3 :48 (2004) is used as the soundtrack music.
Works from the Goetz Collection, Haus der Kuntz, Munich, Germany, April 20 – July 8 2012
The House of Books has no Windows, The Modern Art Oxford Gallery, Oxford, UK, 2008
Museu d'Art Contemporani de Barcelona (MACBA), Barcelona, Spain, February 2, 2007
Miami Art Museum (MAM), Miami, FL, USA, 2007

Fracas - Eduardo Menz (5 :00 – 2006, Experimental Short) Soundtrack: Creeping Ivy – 1 :33 (2002)
AsoloArtFilmFestival, Milan, Italy, 2009

Athens Video Art Festival, Athens, Greece. 2008
Ybor Festival of the Moving Image, Tampa, Florida, USA, 2008
Double Negative Film Collective Group Screening, Ex-Centris, Montreal, QC, Canada, 2008
Dawson City International Short Film Festival, Dawson City, YT, Canada, 2008
Big Muddy Film Festival, Carbondale, Illinois, USA, 2008
Vidéoformes, Vidéothèque éphémère, Clermont-Ferrand, France, 2008
Victoria Film Festival - Victoria, BC, Canada, 2008
Drop the Camera: Appropriated Footage, Cultural Anxieties, Power Plant Gallery, Toronto, 2008
Winnipeg Avant-Garde Film Festival, Winnipeg, MB, Canada, 2007
Sydney Underground Film Festival, Sydney, Australia, 2007
Toronto International Film Festival, Toronto, ON, Canada, 2007
Montreal Underground Film Festival, Montreal, QC, Canada, 2007
Les Rendez-Vous du Cinéma Québécois, Montréal, QC, Canada, 2007

Immaterial - Stephanie Loveless (5 :00 – 2003, Experimental Short)
Original soundtrack created : Immaterial – 5 :00 (2003), February-March 2003
International Festival of Cinema and Technology, Orlando/Los Angeles/New York/London, 2006
La Casa Encendida, Madrid, Spain. June 2005
Antimatter Festival , Victoria, Canada. September 21. 2004
Festival de l'Image Nouvelle, Sherbrooke, Canada. September 2004
L'Evenement Interuniversitaire de Creation Video, Montreal, Canada. February 2004
Liquid Bodies, Toronto, Canada. October 25, 2003
MicroCineFest, Baltimore, MD, U.S.A. October, 2003

SELECTED SOLO PERFORMANCES

Dialogues Festival, InSpace Gallery, Edinburgh, UK, October 17 2012
WORM, Rotterdam, The Netherlands, September 28 2012
Studio Loos. Den Haag, The Netherlands, September 27 2012
Fleishman Gallery, Toronto, Canada, January - February 19 2012
Pitch Black Audio Series, Raw Sugar, Ottawa, ON, Canada, July 22 1011
DIEM, Royal Academy of Music, Aarhus, Denmark, November 15 2010
KulturHaus Abraxus, Augsburg, Germany, November 5 2010
STEIM, Amsterdam, the Netherlands, November 4 2010
CREALAB, Nantes, France, November 2 2010
dia de los muertos Festival, Caen, France, November 1 2010
Modern Fuel Gallery, Kingston, Canada, October 28 2010
The Knot Gallery, Athens, Greece, July 1 2010
Mutek Festival, Monument National, Montreal, Canada, June 3 2010
Holophon.ca, Regina, SK, Canada, July 25 2009
VideoIn Arts Center, Vancouver, BC, Canada, July 31 2009
Great American Music Hall, San Francisco, USA, March 26 2009
Princeton University, Princeton, NJ, USA, February 17 2009
Naropa University, Boulder, CO, USA, October 10 2008
Mutek Festival, Theatre du Nouveau Monde, Montreal, Canada, May 29 2008
Altavoz Festival, Venice, Italy, May 24 2008
Cap Sembrat Festival, Barcelona, Spain, May 23 2008
Noise Istanbul : Signals from Outside, Dogzstar, Istanbul, Turkey, March 25 2008
Spark Festival, The Nomad World Pub, Minneapolis, USA, March 1 2008
Htmlles festival, The Savoy/Metropolis, Montreal, Canada, October 20 2007
Send + Receive Festival, Winnipeg, Canada, May 11 2007
Epoxy Festival, Sala Rossa, Montreal, Canada, May 3 2007
TILT 4: A tribute to Hugh LeCaine, Société des Arts et Technologies, Montreal, November 12 2006

PREFACE AND ACKNOWLEDGEMENTS

A dissertation is not only an academic treatise, but also a measured portion of the author's life. Among those to whom I will always be grateful stands my husband Andrew Harding, who I encountered as I began planning my production. His immense love and support at such a difficult time were only matched by his patience as he saw me through the task of writing. I am equally grateful to Shane Turner, whose love and friendship guided me through the early years of my program, and who helped inspire and shape my artistic dreams.

There is a long list of contributors to whom I am indebted for their work on *Fear of Flight*. I was lucky to have Caroline Rochefort star in the production. Her agility, grace, and enthusiasm brought the piece to life. I would also like to thank Geneviève Bolla for her inspired choreography, Emily Comeau for her improved costume design, and both Andrea Rideout and Jason Hendrix for their unending support and help leading up to opening night. The list continues: Amy Rae Hudston, Isabelle Arcand, Émilie Gratton, Sophie Bréton, Audrey Ellis Fox, Bonnie. E. Johnson, Alex Gaskin, Jasa Baka, Harry Smoak, Michael Fortin, and Brad Shur. My gratitude also extends to Sha Xin Wei's Topological Media Lab, Chris Salter's XModal Lab, and to Hexagram, for their generous equipment and resource loans without which I could not have completed my production.

Finally, I am honored to have my committee be comprised of four of my most influential teachers. Thank-you: Todd Winkler, Butch Rovan, Sha Xin Wei, and Chris Salter, for guiding me through my academic and artistic pursuits and for contributing so much to who I am. I hope you enjoy the read.

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INTRODUCTION

MOTIVATION: MULTIMEDIA PERFORMANCE

Modern multimedia performance is a hybrid practice that inherits from many different artistic traditions and modes of discourse. It is performance that makes use of media technologies in such a way as to be an integral and significant part of the production's content. Rosemary Klich and Edward Scheer attempt to tease out its defining attributes, stating that: "the poetics of all forms of multimedia theatre are built on the fundamental characteristics of hybridization, audience participation, and the prioritization of the performative act over linear literary narrative" (18). They also note that: "Multimedia performance, as a medium that incorporates both real and virtual, live and mediatised elements, is in a unique position to explore and investigate the effect of extensive mediatisation on human sensory perception and subjectivity" (2).

Though contemporary multimedia performance might differentiate itself from past artistic traditions, it is descended from a long historical trend to investigate the affective discourse of media under multiple modes of spectatorship. In his book *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*, Steve Dixon situates contemporary multimedia performance within a greater narrative of hybridization, experimentation, and technology rampant in theatrical practice. He demonstrates

that performance has always made recourse to new technologies and explored the creative potential between live and mediated modes of representation. In his exploration, Dixon pinpoints three periods of theatrical activity that act as direct precursors to modern multimedia performance: the Futurist movement of the early 20th century, Fluxus, Allen Kaprow's happenings, and the other mixed media and performance experiments of the 1960s avant-garde, and the aesthetic revolution in that took place in the 1990s under the new found availability of a proliferation of digital tools (87). He points to each period's aesthetic focus on the directed experience of spectatorship through multiple modes of media discourse for common ground.

The emphasis on spectatorial engagement in contemporary multimedia performance has increased focus on how mediatization shapes the reception of experience as well as ontological discourse. Sensory immersion acts to shape the spectator's sensory capabilities as well as their mode of engagement and holds them within the fixed moment of presentation. Strategies that make use of such attributes as scale, contrast, volume, and surround placement, all contribute to the immediacy of experience. They not only nail the spectator's awareness to the here and now of the performance, but also condition the spectator's senses over time to shape how they perceive the production. In post-dramatic multimedia performance, immersive media strategies are often voiced as scenography, to contextualize the performance and provide a sense of environment.

Dramaturgy is *staged*. It is derived from narrative. Media, on the other hand, such as sound or image may be *composed*. It can be organized according to non-narrative aesthetic heuristics to encourage the production of particular affect. Multimedia performance often employs an engagement with its constituent media that falls somewhere in the middle. It can be structured according to any discourse in which it participates, or can manifest a new one. The term *intermedia*, refers to artwork whose aesthetic sensibility not only combines media but also necessarily intersects them, emerging from the rich terrain of their encounter. While traditionally many artists and theorists have stressed the difference between live and mediated forms of representation, contemporary multimedia performance offers a fertile intermediary for exploration. According to Klitch and Scheer:

> "The framework provided by the notion of intermediality moves away from the theoretical polarization of the live and mediated and provides a lens through which to explore the patterns manifesting across media within the theatrical frame." (5)

Here, the theatrical frame is a powerful device, able to blur distinctions in ontology and physics to create a thin veneer of congruity.

A number of questions linger as to the nature of multimedia performance. Can live performance be integrated with media into a single compositional dialog? How does performance influence inter-sensory composition? Do mediatized representations function alongside live performance in a theatrical context? This dissertation aims to engage with these questions through practice, by constructing a work around them, and by using them to analyze the result. It undertakes this effort with the ultimate goal of widening the framework through

which multimedia performance is evaluated in order to clarify the resulting aesthetic dialog. What is clear is that any investigation of multimedia performance must take the experience of the spectator into consideration. To do so, the affective discourse of inter-sensory composition must be interpreted within the narrative theatrical framework, and the narrative theatrical framework's influence on the perception of affective compositional discourse must be understood. Finally, any arguments that result need to be framed against the effects of immersion and intermedia dialog on spectatorship.

FORMAT OF THE DISSERTATION

The dissertation to which this document contributes has two components: a one-hour multimedia stage production and a written text. The production, named *Fear of Flight*, was staged for the public in Hexagram's[1] black box theater in Montreal from the 19th-21st of April 2012. This written text refers to those public performances. For documentation purposes, the piece was again staged in late June of 2012 without audience. Appendix 1, included as a DVD, consists of five videos produced from *Fear of Flight's* documentation. The videos intersperse footage from several cameras, as well as original production materials, to convey the work's surround composition. Each video represents one of the production's five movements.

[1] Hexagram/CIAM is an inter-disciplinary research-creation initiative based in Montreal whose members span many of the city's top universities.

Fear of Flight investigates the intersection of surround audiovisual composition and live performance to draw meaningful conclusions about the experience of presence and the role of the performer within immersive media composition. The production integrates abstract audiovisual narrative with a live dancer's floor and aerial performance. It also considers the sensory experience of the audience, who must adapt to their own physical situation in the surround projection environment. Real-time video capture is employed to synchronize aspects of the dancer's movement in the air with the audiovisual composition during the performance. Part of the aesthetic and technical challenge of the piece lies in the seamless integration of high-resolution, pre-rendered, audiovisual material with audiovisual material that is generated dynamically within the moment of performance.

Among the theoretical issues that contributed to *Fear of Flight's* development are the impact of immersion on the perception of compositional dialog, and the mechanisms by which presence may be expanded and dislocated from a performing body through mediation. The written text explores these issues by examining how technologies of representation communicate presence[2] within the context of performance, and how both presence and the audience situation might influence the construction of meaning within a composition. An in-depth analysis of *Fear of Flight* follows the theoretical discussion. The analysis outlines the compositional strategies and technical methods employed by the piece, and

[2] Presence is discussed in detail in detail in Chapter 2.

the theatrical framework in which presence is expanded for compositional affect. A breakdown of the written text, by chapter, is as follows.

Chapter 1 examines video that has been projected in the context of stage performance from the perspective of theatrical discourse. It build's a theoretical argument around notions of presence to discuss how video might function in performance and how its doing so might influence the affective discourse of a production. To build on this discussion, Chapter 2 analyzes three major multimedia works that each engage in different performative relations between subject and spectator. It examines how compositional dialog, largely concerned with structure and affect, is mediated by performance discourse. The chapter concludes with a brief discussion on the relationship between inter-sensory compositional gesture and theatrical presence.

The remaining text concerns *Fear of Flight*. Chapter 3 provides a full structural and dramatic analysis of Fear of Flight. It discusses the production's self-referential structure, outlining, by movement, its major components and contributions to the narrative. Chapter 4 discusses the production's development and highlights important strategies and considerations relating to the composition. The chapter traces the work's material development from the first video shoot through its choreography. It lists the guiding aesthetic principles that were used throughout the composition and staging, and gives examples as to how they were applied. Chapter 5 offers an in depth discussion of the production's use of mediated representation and the resulting affect within its theatrical and compositional dialog.

To contextualize the discussion of *Fear of Flight*, Chapter 6 provides a detailed outline of the production's construction. It gives technical information on the work's staging and the software implementation of its real-time performance system. Finally, the Conclusion revisits the impact of immersive sensory stimulation on compositional gesture, and attempts to deconstruct the influence of presence on the perception of motion. It does this in order to postulate how expanded presence might influence the construction of meaning within multimedia performance.

CHAPTER 1: WHAT IS PRESENCE?

THE PROJECTED, PERFORMING BODY

Digital media has increasingly entered the domain of live performance primarily in the form of video. The use of video within the context of stage performance complicates traditional views of both disciplines, entangling representations of bodies and space with live bodies and real spaces. Within the context of a performance these mixed ontological spheres function together precisely because it is the nature of theatrical construction to allow them to do so. Still, many questions can be asked of their engagement: What is the effect of video projected within the context of the live? When these spheres overlap, how do they inform each other? A more substantial question arises from this line of enquiry: Can projected video emanate a sense of presence in the context of stage performance? At the heart of this discussion are notions of liveness, of temporal and spatial syncopation– the disjoint meeting of disparate times and spaces, and of the mutually informed construction of affect between separate representations of reality.

To illustrate the relationship between the live and the projected image in stage performance I will draw a meaningful line through past dialogue concerning the content of the photographic archive into questions of liveness and theatricality. I will examine the ways in which the syncopated spatial and temporal union of projected video and live performance combines into a single

performance event. Finally, I will speculate upon the space of affect that exists between the live and the projected. This work will be undertaken with the ultimate goal of examining the construction of presence for the projected image in the context of stage performance. It is my personal, fervent, belief that projected video may be used in such a way as to extend the dialogue of performance created by the live body in space. In this situation, projected video is not a prosthetic of the performer, nor is it a replacement for the performer who is no longer needed for the production of affect, instead the relationship between the projected image and the physical bodies and spaces with which the projected image is informed extend each other's presence.

THE PHOTOGRAPHIC REFERENT UNDER DIGITAL TECHNOLOGIES

The notion of presence is complicated to describe. Its definition lies somewhere in the subjective realms of perception, and it is interpreted differently in the discourse that surrounds separate artistic disciplines. For Roland Barthes, who examines the photographic image in his *Camera Lucida: Reflections on Photography*, the presence of the photographic subject is strong enough to invoke the unique temporal-spatial moment in which it was captured within his own temporal-spatial moment. To Barthes, this suture of time and space is a disturbing one which always suggests death (92), both the death of the photographically embalmed subject, and that of the moment in which the photograph was taken. Barthes describes the camera as a device that renders subjects into objects, disassociating their consciousness from their identity (12).

He comments on the stillness of the photograph, which always exists in relation to its subject's future, though that future may have taken place in its observer's past.

Barthes' discussion of photography is voiced through the persona of the spectator. He thus answers the question of *What am I looking at?* This question leads him to declare, "photography's referent is not the same as the referent of other systems of representation" (76). He calls the 'photographic referent': "not the *optionally* real thing to which an image or a sign refers but the *necessarily* real thing which has been placed before the lens, without which there would be no photograph" (76), and attributes the power of this referent to the mechanism of the photographic apparatus.

The presence that Barthes senses emanating from the referent of a photograph incorporates more than the space and time in which the photograph was taken. Inside a photographic image, Barthes finds a meeting place of both the captured past's future and his own present's past. The presence of the referent is expanded through Barthes' own reading of the photograph, and incorporates both what has been shown to have existed (by the logic of the photograph) and what has not been presented before the camera but is still somehow explicit within his own gaze. This includes any knowledge or supposition that he himself maintains about the photographic subject. For Barthes, the presence of the photographic referent is something that is enabled by his own looking, however, the spatial and temporal reach of his gaze are expanded by the photograph to include multiple points of reference.

Walter Benjamin also addresses the notion of presence, as captured by the photographic referent, in his discussion of the aura and of authenticity. According to Benjamin, presence is brought forth by the unaccustomed clarity evoked through the use of the photographic apparatus (244), which, through its technological intervention, is able to present time and space in ways in which the human eye can not perceive them through its own natural behavior (243). Benjamin's argument treats the camera as a kind of prosthetic device of the eye, but his explanation of what the camera might capture hints at something deeper than representation. For Benjamin, an almost mystical quality may reside within a photograph that allows him to make contact with the essence of its subject. He terms this specter 'aura' and describes it as an authentic encounter of an object in time and space (250), saying of the aura that it is: " the unique appearance or semblance of distance, no matter how close the object may be" (250).

For Benjamin, the aura is a specific property of the photograph and does not apply to other means of production that might make use of the photographic referent. For instance, he contrasts the photograph with its mechanical reproductions, finding in the first uniqueness and duration and finding only transience and reproducibility in the copy, noting that the copy has no aura. He explains this loss by stating that:

> "The stripping bare of the object, the destruction of the aura, is the mark of a perception whose sense of the sameness of things has grown to the point where even the singular, the unique, is divested of its uniqueness – by means of its own reproduction" (250).

The ability of a subject's aura to be lost through reproduction suggests that the aura exists within the physical substrate of the photograph, as a condition of its

perception that is tied to the representation it displays, and which reproduction might alter.

By Benjamin's reasoning, to view a photograph is to touch the trace of light that encountered the subject itself. He positions the aura within the perceptual realm defined by actual contact with the authentic through the mechanisms of its representation. It is this confrontation that establishes the perceived subject, communicating the subject's presence within the observer. The way in which this contact is initiated is of tremendous importance, since the observer must be able to recognize the mark of the authentic subject for such a confrontation to occur. For Benjamin, the medium of photography is inherently associated with presence because of the way light is communicated within a physical object. A photograph attests not only to a specific temporal-spatial moment, it attests to the actual encounter with its subject that the light engaged with when it was formed. A photograph passes on a remnant of an original experience rather than a second order copy.

Benjamin's discussion of the aura widens the scope of Barthes' question *What am I looking at?* to include the physical reality of representation. This line of reasoning becomes pertinent when considering how the photographic referent has evolved with the development of new technologies of representation, along with its analogues under different modes of production. In his article "Image as Trace", Peter Geimer considers Susan Sontag's argument, descended from both Barthes' and Benjamin's, that a photograph is "not only an image (as a painting is an image), an interpretation of the real; it is also a trace, something directly

stenciled off the real, like a footprint or a death mask" (Sontag in On Photography 154). He concludes that the apparent realism of the photographic referent arises as much from the cultural milieu of photography as from the apparatus itself and critiques statements that under digital technologies the referent is meaningless as it can no longer attest to the existence of the real (8).

Geimer's discussion comments on the widespread linkage of film with the photographic referent, and the troubled status of video within this theory of representation. The referent in video is descended primarily from photographic technologies and inherits some of their discourse, though any trace left from the original luminous contact with the captured subject has been mediated successively through several layers of physical and representational analogy. A digital video image is always a copy, and each copy of that video is of the same order of originality (as per Baudrillard's famous assessment of simulacra). Modifications to the video data do not fundamentally alter its ontological status. For many: "the apparent realism of this product ... is not based on the inscription of a trace, but is rather the result of a series of codes, conventions, and varying ascriptions" (Geimer 8). In other words, video can allude to the authentic subject as captured by the photographic referent, but cannot provide contact with it.

For other theorists, such as Brian Rotman, the indexical properties of a referent are always medium specific because they relate to the ontological discourse of the medium itself. According to Rotman:

> "the medium in which a marking of self-presence such as *I* occurs is of fundamental importance to its status, to the effects open to it, and to its fate in relation to other media. Self-enunciation is medium-specific" (54).

Under this rubric, a subject's presence is intimately tied to the way in which its representation is experienced, which necessarily descends from the dialogical affinities of the medium. Rotman's statement complicates Barthes' question of *What am I looking at?* by including within it a malleable framework for the nature of presence. By introducing the medium-specific factor of ontology, Rotman asks of the referent: *When I look at it, what do I see?* Inherent within Rotman's argument is the fundamental assertion that an observer applies different modalities of perception when confronted with different media, to decipher the varying modes of ontological discourse in which the media engage.

Rotman's logic might be used to shed some light on the case of projected video. The referent in mediated technologies does not, as expected, attest to the real but to the *constructed real*: the real as it exists under the effects of mediation. Geimer's remark to the effect of photography's cultural milieu on its proclaimed relationship with the authentic acknowledges that photography too can be mediated, and that it is plausible to find within a photograph, a lie. Rather than invalidate digital technologies, the troubled status of the 'photographic' referent under new means of production puts greater emphasis on situation and culturally appropriate determination to establish subject and authenticity. The question of a subject's presence then, is differed.

In film theory, discussions of realism tend to descend from the consideration of the photographic referent. An interesting addition to these theories is that of Christian Metz, discussed at length in Tom Gunning's essay *Moving Away from the Index: Cinema and the Impression of Reality*. Metz

describes the literal presence of motion for the spectator of cinema by noting that movement is never representational:

> "the strict distinction between object and copy [...] dissolves on the threshold of motion. Because movement is never material but is always visual, to reproduce its appearance is to duplicate its reality. In truth, one cannot even 'reproduce' a movement; one can only re-produce it in a second production belonging to the same order of reality, for the spectator as the first" (9).

Gunning works Metz' theory into a convincing argument against non-indexical interpretations of video that rely on its status as a digital medium and the implied loss of signification for its 'photographic' referent. He states that the real movement derived from film or video, provides an authentic experience of its depiction which adds to the affective discourse of the media:

> "the physiological basis of kinesthesia exceeds (or supplements) recent attempts to reintroduce emotional affect into spectator studies. We do not just *see* motion and we are not simply affected emotionally by its role within a plot; we *feel* it in our guts or throughout our bodies" (39).

Similarly, attributes of video such as brightness, scale and volume, though belonging to the depiction rather than the referent, still offer a real encounter to the spectator. Gunning's argument characterizes the medium-specific question of presence in video, pushing it from a discussion of the still to one of movement and duration, while avoiding questions of the referent and its relation to an external reality.

Gunning's assertion that spectators experience motion within their own bodies has a scientific basis, at least in the case of biological motion. Research into *mirror neurons* demonstrates that the same pathways are active in a subject's brain when they observe an action as when they perform it (Puce and

Perrett 440). Current discussion in the field of dance draws attention to the principle of *kinesthetic empathy*, so titled because it describes the physical process by which spectators experience the motion they witness within their own bodies. Barbara Montero discusses kinesthetic empathy in her writing on proprioception. She believes that dance, or indeed other expressive physical gesture made by humans, is experienced within the spectator's body as a kind of "proprioception of another's movement", and as such, enjoys a significant qualitative perceptual advantage over other kinds of motion[3] (238). Modern scientific research supports the argument that the motion of bodies is perceived with greater immediacy and clarity than other forms of motion (Puce and Perrett 435). While such research may favor live bodies over mediated representations, mirror neurons have been demonstrated to fire in response to video examples as well as to the movements of actual bodies (9 Rizzolatti and Craighero).

LIVENESS: CONSTRUCTING THE AUTHENTIC

In his book *Liveness: Performance in a Mediatized Culture*, Philip Auslander addresses the ontological status of video as a progression of the televisual. He comments upon an important cultural distinction in temporal-spatial construction by saying that (early): "television might well have striven to be cinematic; but instead it strove to be theatrical" (12) and that "unlike film, but like theatre, a television broadcast is characterized as a performance in the present"

[3] Barthes makes a similar argument with his comparison of Fischer-Dieskau and Panzera in his essay *The Grain of the Voice*.

(15). To unpack these statements, consider that while both film and video have access to the same methodological tools of construction when edited under modern techniques, video evolved from television with the historical purpose of broadcasting *authentic events*[4]. This need to establish the presence of an event as the authentic, rather than to establish the presence of a subject, defines the ontological discourse of the medium. While "film's indexical nature has almost always (and usually exclusively) been derived from its photographic aspects" (Gunning 29), video has historically pointed instead towards an encounter with a live temporal-spatial experience.

The narrative tools of construction that cinema lays claim to break considerably from the spatial and temporal properties of events in the external, physical, world. Cinematic narrative incorporates multiple points of reference and discontinuities, as well as presentation conditions in which the observer is buffered by darkness from the screen, ensuring that there is never any need to incorporate what they are seeing into the same plane of reality in which they, themselves, exist. These devices do not mean that the cinema does not reference the space and time of human experience, rather that the narrative of cinematic discourse does not necessarily situate itself in the continuous present. Of course, it is equally as possible for video, as a medium, to engage in cinematic discourse as it is for film to avoid it. The discourse of the televisual,

[4] Recall that the first television broadcasts took place in the late 1920s, and videotape was invented in 1957 (Genova). With the exception of a very few shows that were filmed in front of a studio audience, such as the popular American comedy *I Love Lucy*, television remained a live-only medium for its first 35 years. It still retains that ability through news programs and other televised events such as sports and awards shows etc. (Anderson in MBC)

however, lays claim to a different lineage from the cinematic, whose narrative tools can be traced properly to those of fiction. In the televisual, time and space are theatricalized so that, even when multiple temporal-spatial segments are connected together, they are experienced as taking place within the same temporal conditions as their presentation.

In her lecture *Plays*, Gertrude Stein says of the theatre that it "is almost always in syncopated time in relation to the emotion of anybody in the audience" (93), and that "the thing seen and the thing felt ... not going at the same tempo is what makes the being at the theatre something that makes anybody nervous" (94). Stein compares the temporal discrepancy found within the dominant theatrical paradigm to that found within jazz music, where syncopation is a major component of musical discourse, and advances musical narrative through a sense of anticipation. She describes the experience of relating to two distinct temporalities at once. The one portrayed within the theatrical context, the other that of the audience and the physical theatre, as being both disorienting and uncomfortable. Though Stein finds the experience unsettling, she recognizes that theatrical presentation almost always involves multiple, overlapping, temporalities inside a continuous present. It is this experience of sharing in the present of the observer that Auslander refers to when he speaks of 'liveness', and to which he relates the televisual. The conditions for 'liveness', as perceived through the televisual, descend from those within theatrical discourse, in which the temporal-spatial moment is constructed, but in which it is presented as continuous or as a series of continuities.

Consider the relationship that an entire generation of Americans has developed with J.F.K's assassination in the 1960s. Few people were actually present at the legendary car parkade, over the course of which President Kennedy was shot. The event was televised, however, 'live', and millions watched the chaos that ensued on their television sets as the events unfolded. The Americans who watched President Kennedy's assassination on television as it occurred, experienced two temporal-spatial moments simultaneously: one of the Dallas parkade, and one in which they were situated, watching their television set. In fact, this experience is often alluded to in pop culture, as people who 'witnessed' the event through its 'live' coverage recount where they were as the events transpired. Such stories involve two overlapping spatial realities within which the observer is invested. In theatrical discourse, this co-existence of disparate spaces is called *spatial syncopation*, as derived from the *temporal syncopation* of Gertrude Stein.

In addition to those who watched the events unfold 'live', as they happened, in the Dallas parkade, on their television sets, thousands more watched the experience afterward, in a recap or retransmission of the broadcast. For those who experienced the event in this manner, a curious anomaly took place. The footage that they viewed still broadcasted the event as 'live', though clearly the moment referred to had already passed in world-history. For those viewers, the experience of J.F.K's assassination was both temporally and spatially syncopated from their own physical reality.

As a medium, video inherits the discourse of 'liveness' from the televisual. To communicate the live ontological discourse of theatre, the experience of temporal and spatial continuity is necessary, however, it does not actually matter if a video was constructed in the past, or discontinuously, or if it refers to something that isn't real for it to be experienced as 'live' in this manner. Auslander makes a convincing argument for 'liveness' as a constructed property of presentation, rather than one of being[5], when he examines the televisual genre of situational comedies, or *sitcoms*, and the way in which they are presented as being 'live'. Sitcoms can be aired again and again after they have been constructed. They can be heavily edited from their original length or interrupted by commercial breaks upon playback. Still, they carry properties that attest to their 'liveness', including the sounds of audience laughter, real or added as a post-production effect. Though a sitcom might have been originally shot in front of a studio audience in a live, shared, moment, this moment happened well before the show was aired. The temporal lapse between the television audience's experience of the sitcom and the event of its filming does not stop the show from being experienced with all indications of being a live theatrical event.

The relationship between performance and liveness is very deep, and difficult to tease apart from the human element with which these characteristics

[5] I use 'liveness' to discuss the constructed temporal quality of media presentation defined by Auslander, and liveness to describe the state of being within shared time and space. Note that Auslander does not use any marks to distinguish these concepts and so I do not distinguish them in his text when I quote it.

are usually associated. For Peggy Phelan, a vocal proponent of the irreducible qualities of live performance:

> "Performance's only life is in the present. Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations of representations: once it does so, it becomes something other than performance. To the degree that performance attempts to enter the economy of reproduction, it betrays and lessens the promise of its own ontology" (149).

Phelan's argument echoes that of Benjamin, who believes that reproduction destroys the encounter with the authentic provided by the photographic referent. For Phelan, the encounter with the authentic offered by performance takes place unarguably within the shared temporal-spatial moment of the audience and performer. The live situation of performance is not something that Phelan feels can be mediated without being destroyed. We might ask then, what does televisual 'liveness' refer to and how does it differ from the live situation of performance?

Clear discrepancies exist between the constructed property of 'liveness' and the live performance context that it refers to. Though theatrical representations are often scripted, there is always the possibility that an actor may deviate from his or her script, modifying the temporal-spatial moment that they portray inside the fabric of the one in which they create the portrayal. The term *corpsing* is used to describe those moments when an actor breaks character to laugh at his or hers own situation, or to cause another actor to do so. Within a live stage performance, corpsing is always a possibility, this is not the case during the playback of a pre-recorded televisual event, whose structure may be marred by playback conditions or interruptions, but fundamentally can't be

reconfigured without some kind of external agency acting upon it. In the domain of the televisual, the observer is separated from the represented performance event through a displacement of time and space. It is worth noting, however, that a subset of current stage practices involving the use of video and real-time feeds collapse this divide.

In the work of The Builders Association, a live relay of video taken from the physical performance on stage is often used as a way to expand narrative by guiding the spectator through the physical details of the performance. In their work *Jump Cut (Faust)*, a reworking of an earlier incarnation, 1996's *Imperial Motel (Faust)*, this technique is featured prominently.

> "the live relay of onstage action and its mixing with recorded material effectively drew spectatorial attention to the projected action for the most part, although this focus was in constructive tension with the onstage performances feeding into the projections" (Giesekam 145).

During this performance, many of the portrayed elements in the projected video were taken directly from the constructed temporal-spatial moment of the stage. In this context, it was indeed possible for a represented actor within the video plane to break role along with his or her real-world counterpart, as well as to express a specific engagement to the temporal and physical reality of events. Still, between the actors and their representations, a clear phenomenological distinction existed in their ability to interact. The representation of an actor could not physically grab a prop, just as a real actor could not physically enter a depicted space. In the context of a performance, the physical world is easily identified as intersecting that of the spectator.

Though the televisual portrayal of 'liveness' cannot offer a true physical interaction between the event and the spectator, the ideology that it presents of encountering the temporal-spatial moment within which the event takes place is sufficient to communicate some aspect of the experience. Auslander notes the discouraging effect that this aspect of representation has had on performance traditions, which must compete to survive within the cultural economy:

> "The ideology of liveness that the televisual (the cultural dominant that is now expressed through a variety of media) inherited from television (the medium) has enabled it to displace and replace live performance in a variety of cultural contexts" (24).

A startling property of the televisual is its ability to stand in for contact, so that witnessing a televised event can evoke a partial experience within the observer of having participated through attendance. Although this false contact is maintained within a medium-specific representational discourse, it alludes to the necessary conditions for presence.

To return to my previous example of the Dallas parkade, John F. Kennedy's assassination held extreme national importance for America. Undoubtedly, the events that transpired would have left a deep mark upon the country's population even without its media coverage. The event saturated broadcast television, replayed and discussed on every American station for days. The same televised footage was continuously portrayed as 'live' during the prolonged cultural moment. Through the 'live' nature of this coverage, the event of J.F.K's death became a participatory experience for Americans, who, although they could not claim to have been present as the event itself, could claim the

experience of having witnessed it from their television sets, or even their radios, 'live', as it happened.

Because 'liveness' can be constructed, a live relay of video from the space of the stage can be faked, playing on notions of immediacy and mediatization. In the work *Voyage* of Japanese performance collective Dumb Type, live video relays are used extensively, such as when a performer swings a ship around their face and a camera inside the body of the ship relays its view to the screen at the back of the stage. In another moment, a performer lies on a dark circle on stage, while a real-time feed of her performance is projected behind her composited over a field of grass. To the audience, the footage first reflects the performance in front of them, broadcast live. The projected image shows the performer situated in an ideal environment, offering insight into the performer's narrative. Over the course of this section, slow discrepancies arise between the performance of the actor and that projected on the screen, that seem to inform each other. The evolution of the projected image's interpretation from live to pre-recorded, begs questions of the effects of mediation on the natural world and the ways in which we perceive it.

Barring revelations that arise through the use of the medium on stage, through its depiction, or through theatrical dialog, whether video functions as a continuation of the staged temporal-spatial moment, or as a representational interruption of it, is largely related to whether the video offers a depiction that can be incorporated into the portrayed reality of the theatre. Auslander observes "the general response of live performance to the oppression and economic superiority

of mediatized forms has been to become as much like them as possible" (7). Modern theatre practices have referenced extensively the kind of discontinuities that are possible to display through the manipulation of media, as a result of these practices, even non-continuous representations of time and space can be integrated easily into some modern theatrical events.

For the Builder's Association 2003 production of *Aladeen*, a large projection screen was incorporated into the top half of the set. *Aladeen* centered on the interactions of a group of outsourced call-center workers in Bangalore, India. The actors offered very little physical variation within their performance, sitting at their desks within the call center. Projected on the screen above them was a dynamic influx of cinematic narrative, cultural citation, faces and text, to illuminate the phone calls in which the call-center operatives were participating, as well as their complex engagement with the western culture their job required them to functionally mimic. In this production, the cinematically structured video projections were re-situated within the temporal discourse of the theatre as occurring in the shared temporal-spatial moment, however, the discontinuities they depicted showed them to be a representational discourse that included 'live' events which intersected with the theatrical narrative.

THE PROJECTED, PERFORMING, BODY

I have previously stated that the projection of video in the context of stage performance theatricalizes the projected video. What does it mean to theatricalize something, as in this case? Definitions of theatricality stem from the

modern or post-modern Western theatre: “a theatre in which one group of people spend leisure time sitting in the dark to watch others spend their working time under lights pretending to be other people” (Ridout 6). Erika Fischer-Lichte examines notions of theatricality as proposed by multiple theorists. Her investigation begins with Fiebuch’s argument:

> “there can be no single criterion for a general definition of theatricality beyond the fact that it is a process of production whose product is 'consumed' and which vanishes within the process of being produced” (Fischer-Lichte 3)

and arrives at a premise for theatricality in which “a shift of the dominance within the semiotic functions [in a behavioral, situational or communication process] determines when theatricality appears” (3). Simply stated, her arguments imply that the product of such a process of signification is situated entirely in the temporal-spatial moment of its consumption, although it clearly responds to historical and cultural changes in methods of production and signification both. Theatricality arises as a relation between an object or event and an observer, in which the object or event is evaluated (and its details interpreted) through a lens that is evolved from the current norms of theatre function. Central to theatricality, is the immediacy of the encounter between the object or event and the observer.

In Michael Fried’s seminal essay on *Art and Objecthood*, Fried considers minimal art and the way in which he believes modernist artists objectify their work so as to shift critical discourse from the dialog of representation into that of situation and the encounter with the observer. For Fried, this encounter is fundamentally theatrical because it “is concerned with the actual circumstances in which the beholder encounters literalist work” (125) His arguments on

objecthood and the plane of presentation are consistent with Fischer-Lichte's interpretation of theatricality. For Fried, theatricality is intimately tied to presence, and he voices the ways in which minimalist art makes use of physical qualities such as size and presentation to achieve this affective discourse. In a language similar to that of Benjamin, Fried describes the way that presence is communicated through a perceptual distance during an encounter with a theatricalized art object:

> "Here again the experience of being distanced by the work in question seems crucial: the beholder knows himself to stand in an indeterminate, open-ended– and unexacting– relationship *as subject* to the impassive object on the wall or floor. In fact, being distanced by such objects is not, I suggest, entirely unlike being distanced, or crowded, by the silent presence of another *person*" (128).

According to Fried, theatricalized objects inherit anthropomorphic qualities within the temporal-spatial moment of their relation to the observer (128). The presence of the object is determined in the moment of their observation; however, the agency expressed is that of the artist behind the object.

Interestingly, Fried positions all interdisciplinary artwork as being inherently theatrical, as the discourse of such work is always perceived in the encounter between mediums and the observer is real time and space. He says:

> "The concepts of quality and value– and to the extent that these are central to art, the concept of art itself– are meaningful, or wholly meaningful, only within the individual arts. What lies between the arts is theatre" (142).

Through Fried's depiction, projected video is always theatricalized when it is projected into the representational medium of the stage. Spectators encounter projected video in this context based on the physical conditions of its

presentation and the ways in which its representational elements encounter those of its new live environment, where they are re-signified in the act of their encounter. The video is not evaluated within its own medium-specific discourse, instead, it is evaluated through the wider lens of theatricality in which wrong or contrasting ontological distinctions may function towards the construction of a cohesive whole. The audience abides such contrasts precisely because it is the nature of theatrical discourse for them to do so.

The necessary distance that Fried (and earlier Benjamin) refers to, in the construction of presence, consists of the relation between the observer and the object of their gaze. Nicholas Ridout meaningfully elaborates on this distance, when he comments on Fried's analysis, saying:

> "it is the awareness of one's own body [...] in a situation that seems to constitute the condition of theatricality in [Fried's] argument. Theatricality functions here as a disturbance, almost uncanny, of the proper relations of the spectator to the art" (8).

Ridout proposes that theatricality always, necessarily, involves a disturbance for the audience, as they are presented with a wrongness that they must accept as real within the context set before them. This wrongness may be characterized by an actor who portrays a character, as in the case of the man before me who is Hamlet but who is not Hamlet, or as a negotiation between a represented temporal-spatial moment and the present one, such as: it is Denmark several hundred years ago within this theatre, right now. A spectator is always split into two factions when entertaining a wrongness: the one which participates in the construction of the illusion presented, by being absorbed by it and interpreting it as a cohesive whole that functions appropriately, the other in

which resides the spectator's own subjective discourse and in which the spectator is self-aware. It is in this second faction of subjective discourse that the spectator is aware of the theatre and his or her own thoughts and feelings. For Ridout, the bifurcation of the spectator within the perception of their encounter, more than anything else, characterizes theatricality.

Although any kind of video presentation may potentially bifurcate its spectators' attention in a similar manner to that which describes, it is the conditions of that presentation and its context that determine whether the video is perceived theatrically. Fried addresses this situation as regards to film, remarking in a footnote to his text:

> "Exactly how the movie escapes theatre is a beautiful question, and there is no doubt but that a phenomenology of the cinema that concentrated on the similarities and differences between it and the theatre– e.g., that in the movies the actors are not physically present, the film itself is projected *away* from us, the screen is not experienced as a kind of object, existing, so to speak, in a specific physical relation to us, etc. – would be extremely rewarding" (140).

Part of the difference between the experience of film or video and the theatre involves its physical relation to the viewer. When film is projected in the dark, it is being presented as if the plane of reality it depicts is the sole one in existence. The physical world around it is muted by the darkness, and by the usual accompanying presentation conditions of silence. When video is encountered on a television screen or on a computer, the cultural understanding of its presentation format dismisses its physical presence, so that, although the television may be understood as an object in physical relation to the observer, the video is experienced as a representation viewed within that object. Video is not encountered in physical relation to the observer except under conditions

constructed specifically for that purpose, such as in the context of installation or video art, or in the case of theatre, where the mechanisms of its presentation and subject matter draw physical attention to the video, or change its cultural acceptance. The televisual property of 'liveness', though it may provide the temporal and spatial syncopation of the theatre does not by itself engage the spectator in the acceptance of wrongness, since there is no right condition for depiction within a representational medium. In the case of video, to function theatrically, wrongness, requires a physical instantiation.

An important question is raised when considering the theatricalization of video: Can video perform on the stage? Rideage addresses this question when discussing non-human elements in his reading of Heinrich von Kleist's short narrative in dialogue *Über das Marrinettentheater*. For Rideage, this matter relates extensively to the ways that presence and agency are communicated. He discusses the marionettes that appear as characters in Kleist's narrative, and notes there is no possibility of them establishing eye contact with the audience, a moment in which a mutual recognition of human presence may be established (26).

Rideage does not imply that no presence is communicated by the marionettes on stage, rather, that any presence attributed to the marionettes is a product of human labor and not a manifestation of the marionettes' own agency. To adapt this argument to the case of projected video, consider that although projected video might be anthropomorphized in the context of theatre (as per Fried's argument), projected video references external agency within its

construction, and that agency is a necessary part of performing. The attribution of presence to a non-human element is a product of the encounter between the observer and the theatricalized art object, in which agency is expressed.

Rideage's argument is complicated by the photographic referent, because a photographic referent mediates the authentic encounter to which it attests. If a subject stares at a camera, and a voyeur stares at a photograph, they do not physically meet, but the experience offers the voyeur an uneasy simulation of a real encounter. After all, the subject of the photograph has encountered the camera just as the voyeur has encountered the subject's reproduction, across a barrier of time and ontology. Eye contact can be mediated, across this divide. In the case of video, where the referent may be constructed or modified by digital process, the uneasy result takes the same form. Although there can be no mutual recognition of human presence, the depiction can still portray a stare that functions as so within the theatrical discourse of the production.

In his book *Presence in Play*, Cormac Power characterizes three inter-related modes of presence[6] that can be attributed in theatrical context. He defines these modes as: fictional (the making of presence), auratic (the having of presence), and being present (the literal mode of presence), and claims that presence in the theatrical model is *staged* (14). In other words, presence may be attributed through theatrical context to elements that are not perceived with this quality when considered alone. To derive this result, Power appeals to Garner's

[6] Theatrical presence is sometimes referred to as stage presence, although the term stage presence is also used interchangeability as a descriptive term for theatrical ability.

phenomenology of theatre, from which he takes the term *presencing*. Though applicable to any medium, Power develops the term towards a unique ontological discourse of the theatre in which presence, as voiced through the elements of its construction, is re-attributed flexibly.

> "*presencing* is a term which itself can be used to critique the illusion of an imminent 'here and now'; presencing suggests a play of appearance and disappearance, while presence suggests the very manifestation of the object and the arrest of play" (190).

By adopting this term, Power leads the discussion of theatrical presence away from notions of literal presence and agency, to engage with the multiple layers of representation that function within the context of theatre. In doing so, he suggests that part of the medium specific discourse of theatre, which can incorporate many ontologies simultaneously, takes place in the ways in which presence is dynamically attributed and re-signified from its medium-specific underpinnings.

To further examine the specific situation of presence and projected video in stage performance, consider that projected video is unarguably projected into the shared temporal-spatial moment of theatrical discourse when it is projected on the stage. The live experience of the video's projection is made apparent through its contact with the physical, live situation into which it is projected, as well as through the ontological discourse of theatricality that projected video inherits when experienced in this manner. In the context of the present temporal-spatial moment within which the spectator and the stage both exist, projected video is both a representational medium (in which it might be said to manifest an auratic presence), and a physical, luminous, form that takes on an aspect of the

physical dimensions of any surface against which it is depicted (in which it might be said to have a literal presence). When confronted with projected video on the stage, an audience makes an authentic contact with the real presence of the medium as light, projected live, in the moment, in front of them. Extending this discussion to include the methods of fictionalization which theatre employs, the projected video may be more or less included within the functioning theatrical narrative, so that it is attributed with presence in a contextual manner.

For example, imagine a performance in which a main character is having a conversation with her dead relative, though she is physically alone on the stage. Above and behind the performer, on a screen, is projected a video of a summer sky. Included within the depiction of the video are the sun and a few clouds. After a particularly shocking revelation, the clouds darken and gather ominously, the sun travels lower in the projected image, physically following the actor's horizontal movements across the stage as she scurries across it. In this theatrical narrative of events, the scenic details, portrayed through the video projection, are seen to *respond* to the live depiction on stage. Though these details are not voicing independent agency, still they have a presence within the fictional account on the stage. The presence of these details inherits from the medium-specific ontological discourse of video and the ways that presence is voiced within it (i.e. the referent of the sun refers to the sun - or possibly to a construction of the sun, the movement of its represented passage is experienced directly, the physical reality of the projected video is luminous, if the video is constructed with a continuous representation of space and time then the sun is

experienced as ‘live’, etc.), however, it also is a function of the theatrical narrative in which they are situated, where sudden and immediate attention may be directed towards them. Within the context of the theatrical illusion, the sun is separated from the whole of the video projection, anthropomorphized, and attributed a presence that it does not command previously upon its implied agency as suggested by the situational dialog. Presence as a medium-specific construction is both re-signified and re-voiced under theatrical interpretation.

To return to a previous example, in *Voyage* an actor lies motionless on the ground while the action and interest of the scene happens in the large video projection above her. The projection substitutes for the performer on stage because of her presence below it. In a sense, the video expands the presence of the performer on stage through an auratic evocation. Any agency that is expressed is constructed, if attributed to the character,

Several questions remain about the nature of presence that is attributed to projected video in the case of stage performance. First, what or who is being attested to when presence is attributed in this situation? Second, what is the affective voice of this presence, how is it being felt? I have already begun to address these questions in my discussion of the constructed real, of perceived agency and of the transmission of medium-specific affective discourse. To more fully answer these questions some consideration of modern representational critique and cross-affective discourse is in order, as well as the role of the spectator in media-rich performance.

Hal Foster writes about the image-plane and trauma theory in his essay *The Return of the Real*. He examines avant-garde art practices since the 60s, and reveals a relationship between automatic, technological, processes and a perceptual rupture in the surface of the image-plane through which we view representation. According to Foster:

> "This shift in conception– from reality as an effect of representation to the real as a thing of trauma– may be definitive in contemporary modern art, let alone in contemporary theory, fiction, and film" (146).

Foster introduces the term *traumatic realism* to discuss images that are both "referential and simulacral, connected and disconnected, affective and affectless, critical *and* complacent" (130). He argues that all images are both representational and attached to the real world, or alternately, to other images which eventually may be traced back to the real world, and so it is impossible to have an 'empty' image. The real itself, however, cannot be represented. To explain how the real is conjured, Foster adopts Lacan's notion of the image-screen that intercepts the gaze of the subject, and describes it as the "cultural reserve of which each image is one instance" (140). He relates the image-screen to the codes of visual culture and representation that protect the subject from the real so that they are not blinded by their encounter with it.

For Foster, repetition and the simulacral dialog employed within avant-garde image-construction since the 1960s, presents a surface element that can be interpreted as symptomatic of trauma. In his analysis of such images, he sees the real as not the thing that is depicted under automatic or mediated process, but the thing that is encountered behind this surface, that ruptures the image-

plane and leaks through into the subject's perception when confronting the image. The trauma, here, is the "missed encounter with the real" (132) due to consumerism and successive technological mediation. What Foster describes is the way that the presence of the real is still available through the symptoms of its mediation. Without being touched directly, the real is extrapolated through the effects of its traumatic encounter.

Foster's arguments can be adapted to interpret the meeting of the physical and the projected. The presence associated with projected video in the domain of the live attests to many things, including both its physical, luminous instantiation, and, to the real, dormant within the constructed video product. The telling seams that lie between the different planes of representation reveal themselves and cause a rupture in the surface of the image-plane, so that the spectator may experience the real presence to which the projection attests, symptomatically if not physically. To revisit an earlier argument, if mechanical reproduction strips and removes the aura from the photographic subject by divesting the subject of its uniqueness, projecting the subject's image into the live, physical space of the present does exactly the opposite. In this context, the reproducible image has been instantiated into the here and now, where it occupies a unique position in space and time. The projection of the video within the domain of the physical, re-instantiates the uniqueness of the subject, it ruptures the plane of presentation to make the real that has been referenced by the video apparent. In the context of the stage, the referent of projected video is a re-animated corpse, allowed to walk under another's agency within the realm of the live.

GHOST AFFECT: INTERMEDIA DISCOURSE

Greg Giesekam writes extensively on the subject of the use of film and video in the theatre in his book *Staging the Screen*. He differentiates between two kinds of theatrical work that incorporate mediatized elements: those he terms *multimedia*, and those he terms *intermedia*. In Geisekam's language, multimedia productions are those in which "video is employed in a manner analogous to the way in which lighting, sets or costumes are used [traditionally] to locate the action and suggest particular interpretive approaches to it" (8). By contrast, intermedia productions are those for who "the interaction between the media substantially modifies how the respective media conventionally function and invites reflection upon their nature and methods" (8).

Along the continuum of theatrical usage, successive amounts of affective discourse are discernible in the interaction between media; however, Geisekam notes that contrary to the assumptions of purity-minded theatre-theorists, many such productions are "more overtly 'theatrical' than the quasi naturalistic text-centered productions that occupy many theatres" (12). The integration of multiple modes of representation and their ensuing wrongness in relation to each other, encountered as 'real' in the shared temporal-spatial moment of the spectator, constitutes theatrical affect.

Giesekam comments that the integration of film and video on stage introduces other modes of spectatorial discourse then those traditionally present in theatrical presentation, and that "different viewing circumstances and different expectations associated with theatre attendance may in themselves affect the

ways spectators view media when they appear in the theatre" (20). To clarify this bidirectional relationship, Geisekam refers to Elizabeth Klaver's discussion on the role of the spectator under multiple demands. For Klaver, when confronted with different media simultaneously, the spectator actively performs their engagement, alternating their modes of perception, to arrive at a total understanding of the event as derived from the mixed ontological discourse presented (Giesekam 22). The spectator's role in the viewing process is both active and subjective, offering multiple entries into the perception of the whole, each colored affectively through medium-specific discourse and the relational path of their observation.

Giesekam tempers Klaver's argument by admitting that theatre spectators must balance their media-specific engagements with the entire theatrical context. He notes that emerging strategies in directorial practice inherit from those within composition (13), directing the attention of the spectator through their subsequent engagement with multiple media to obtain affective relations as well as narrative ones. The resulting affective discourse arises between media, crossing indeterminately amongst the spectator's separate modalities of sense perception with which the separate media are informed.

Presence is largely affective, it is a subjective, perceptual property communicated without recourse to language. I have already stated that presence attributed to projected video within the context of stage performance is a product of both the medium-specific attributes of the video projection and the theatrical dialog in which it participates. I would now like to extend this hypothesis, to

suggest that in this situation there is an affective leakage that occurs between the live and the projected, that these two realities inform each other affectively as the spectator performs their engagement between planes of representation.

When the spectator must reference several modalities of sense perception[7], to interpret the total event that is presented before them, there is no way to separate the functional affective discourse that arises through their perception of each medium. There is an inter-animation that occurs between media as they are inter-modally referenced through their contact in the spectator's perception. The presence of each object is colored by this inter-animation, so that, when viewed beside a projected one, an object in the physical, temporal-spatial moment of the theatrical event inherits a new kind of relational identity, characterized by the perceptual discourse of the projected video medium. This process also arises when the projected video is animated through the affective discourse of live stage performance. It is as if each represented object exists alongside its ghost, voiced in the discourse of another medium, contributing to the affective discourse of the total event.

To verify the phenomena, consider the work of Josef Svoboda and the Laterna Magika in their 2001 production of *Graffiti*. Laterna Magika productions are well known for their intensely scenic deployments of video on stage and for the ways in which their narratives inherit from the intangible realities depicted therein. In the final scene of this work,

[7] Recall that spectatorship employs different modalities of sense perception in the perception of medium-specific experience and discourse.

> “the virtual screen fills with a series of geometric planes, a female dancer appears in duplicate, with one image being much larger than life. There is a transition between video and live, as the life-sized image dances to the side and is replaced by the live woman, who than dances with the man. On departing, [the live female dancer] is shown ascending a high abstract mountainside [depicted within the] video, while the [live] man shelters beneath a table” (Giesekam 69).

In this scene, the presence of the female dancer is defined by her engagement in both the live and projected world of the theatrical event. When the dancer first appears she replaces another version of herself whose luminous form can change size and even co-exist as one of many. The live dancer is colored by the luminous, intangible reality from which she emerges, so that she is experienced as emanating from a dream. When she is physically present beside this reality her own tangibility is re-enforced, and informs the affective experience of the video plane as something ethereal.

The domain of performance is so tightly entwined with notions of presence that theatrical discourse has rarely questioned its construction. The integration of projected video on the stage, however, demands new insight into the relationship between medium-specific affective discourse and the way that presence is voiced between media in order to be fully exploited. One thing is certain; it is the theatricalization of these media into the shared temporal-spatial moment of the stage that allows for this inter-modal discourse. The repercussions of such discourse are enlightening: in the realm of stage performance, the projected image and the physical bodies and spaces with which the projected image is informed extend each other’s presence.

CHAPTER 2: INTER-SENSORY GESTURE AND THE CONSTRUCTION OF AFFECT

The dream of a unified inter-sensory compositional framework dates back to operatic innovations of the sixteenth century. Composers have since struggled to create works that cross the boundaries between media. Digital tools with common paradigms for data representation have increasingly blurred the lines across artistic disciplines, and, in response, multimedia work has become increasingly common under these modes of production. Shared, inter-sensory gesture across multiple media can introduce new aspects of compositional discourse in terms of their media-specific engagements and their relational movement. Questions arise as to the affective possibilities of such gestures: How can inter-sensory gesture contribute to the creation of aesthetic affect? How does inter-sensory gesture engage with notions of agency and presence? To answer these questions, I will examine three major multimedia works that each situates their affective discourse within the construction of inter-sensory gesture.

In each of the three pieces that I will examine, the compositional discourse manifests in the dynamic variance of shared gesture between media and the relational movement that they express. Each of these pieces, however, confronts notions of agency and presence in fundamentally different ways by engaging separately with performative relations. The first of these three works is an audiovisual piece in which the inter-sensory gesture belongs to an external, abstract agency, such as the composer, or which manifests external data. In the

second of these works, shared inter-sensory gesture is voiced between sound and image media elements, lighting, and the physical elements of stage performance. For the third piece in my analysis, I will consider an immersive media-installation in which the agency of the spectator provides the necessary gesture to be expressed through their mediatized environment. Finally, I will attempt to situate the results of my analysis within current theories of embodied perception as applied to digital performance practice.

MULTIMEDIA COMPOSITION

In music composition, a gesture is a discrete piece of musical dialogue that indicates intentionality (Popek). To do this, a gesture must be easily separable from its surrounding context, which implies having a distinct contour. It is the shape or change of an easily definable property over time that differentiates an object from a similar stream. Abstracting from this definition, a compositional gesture can be said to be a movement or animation of a property whose contour is well defined and who indicates some kind of intention with regards to its context. Within the domain of sound the most obvious contours are established by changes in volume, especially when a sound stops or starts. Contours can also be traced from movements in pitch or from any other easily extractable perceptual property, including melodic phrasing. To discuss shared compositional structures over multiple sensory domains it is necessary to explore the ways in which properties between mediums can be paired. For time-based mediums, it is sufficient that both properties share in the temporal contour of their

animations rather than any other specific quality. The contour may be defined by continuous expression over both properties, or it can result from their combined animation between the senses. Essentially, it is a perceived motion across both properties.

The field of Gestalt psychology offers a concise explanation of why a gesture can be made in this way through the theory of Common Fate. The theory of Common Fate explains how the mind unifies perception in movement. Objects that move together become linked mentally through observation and don't require separate attention to be followed. In fact, they are categorized perceptually as a single object (Pedroza). Properties that have been perceptually linked together in this way manifest a single compositional dialog over combined media. The affective discourse of such gestures inherits both from the medium-specific properties of the elements involved, from the compositional tension derived from the interplay between media, and from the unique sensory and aesthetic dialog of the piece.

Several models exist for analyzing multimedia. These models descend mainly from disciplines where multimedia work is common such as musical performance, theatre, or even cinema. Approaches towards the analysis of multimedia may include a focus on shared temporal structure and the relational movement that occurs between gestures over separate media (Abtan), the semantic or narrative meanings that arise within their intersections, or, on the nature of the affective experience that is communicated through cross-media

relationships. For many multimedia works, composition, narrative, and affect are intertwined to the extent that they are inseparable.

Giesekam notes that in the domain of live theatrical performance, compositional discourse – that which relates to the aesthetic organization of temporal structure, has become central to multimedia[8] productions:

> "the increased range of source materials in much intermedial work leads toward a tendency to 'assemble' productions, to create 'compositions' of images, sound, light, action and performance, with consequent impacts on how writers, directors, scenographers and performers work" (13).

This attitude sometimes contradicts traditional narrative practice, but is prevalent within many mixed disciplines that describe themselves in terms traditionally reserved for music or dance. Adopting compositional discourse allows multimedia practice to exploit the ways these disciplines refer to the temporal structuring of events and the abstract relational dialog between them. Often multimedia works will base their structure entirely on a medium they include that is traditionally composed for its temporal engagement, such as is the case in choreographed sound and light shows, where the musical structure may be applied to the piece in its entirety.

Analyzing multimedia work for its temporal composition is not sufficient to understand the multiple ways that meaning is constructed. Nicholas Cook does an excellent job of evaluating the semantic modes of construction across multimedia work in his book *Analysing Musical Multimedia*. To do this, Cook

[8] I explain Giesekam's distinction between *multimedia* and *intermedia* in Chapter 2. In my arguments I use the wider term *multimedia* when discussing genre and intermedia when discussing specific examples of cross media interaction that create new modes of compositional discourse.

draws from the theory and history of visual music, as well as from television commercials, rock videos, and opera. He constructs a framework for evaluating what he calls IMMs or instances of multimedia. For Cook, the semantic and narrative interactions that take place within an IMM function to establish a work's affect in a similar manner to how their relational movement might establish the work's compositional discourse. His model, for classifying IMMs can be used to understand both modes of interaction. It relies on determining whether component media support, contest, or simply coincide with each other. By examining the supportive interplay between media, Cook is able to determine whether the greater semantic dialog of a work arises independently or whether it is a function of their intersections.

When attempting to analyze multimedia work, attention must be given to the medium-specific, experiential attributes of the work's components. Not all media, nor all content, engage the spectator uniformly, especially when flattened across common conditions for presentation. Distinctions of ontology, as well as those of characteristic and conditioning, influence the way media are perceived. Consider again the example of an actor in dialog with a projected video of himself, appearing behind him on stage. In this scenario, the interaction of the two character portrayals inherits from the mixed spheres of representation depicted. The event is perceived with some of the ethereal qualities of the projected video medium, but also with the immediacy of the physically present body that the spectator must acknowledge. The movements of the actor within the video-plane and the physical actor are not commensurable. While the

physical actor has full recourse to the third dimension, the video projection may only represent it.

Any discussion of projected video must address the physical experience of its presentation, shaped by such attributes as scale, luminosity, contrast, speed, and position. Klich and Scheer discuss the use of video in the milieu of multimedia performance and media installation as "having the potential to immerse the audience sensually, not in an artificial world, but within the immediate, real space of the performance" (131). They describe immersion, not as providing an alternate world in which to locate the spectator, but instead as enforcing the position of the spectator:

> "in the 'here and now', an enhanced state of being in relation to the surrounding space and responding to immediate stimuli […] the concept of immersion relates to the audience members' level of sensorial stimulation at any one moment, and their awareness of being in the present of the performance and its capacity to engage them emotionally and corporeally (heart racing, hair-raising, sweating and fidgeting)." (131)

Media immersion provides a heightened sensory experience for the spectator in which the affective discourse of composition is reinforced by its immediacy. It encourages sensory conditioning, when composition reinforces specific sensory engagements such as deprivation, sensitivity and saturation. As a result, it is extremely reliant on medium-specific attributes of perception.

I have previously argued that the discourse of videomusic, a specific class of video-based visual music that inherits from the language of electro-acoustic composition, is fundamentally influenced by the phenomenological characteristics of both sound and video perception (Abtan). I would like to extend this argument to say that all multimedia work inherits from the unique experience

associated with the perceptual characteristics of its component media. Presence, in the multimedia context, is constructed porously and inherits from the medium-specific ontological discourse that separate elements suggest. In a multimedia work, presence is co-performed by the spectator, as they actively or unconsciously switch between different modes of spectatorial engagement (Klaver in Giesekam 22). Far from being disruptive, this performed engagement on the part of the spectator, constitutes much of the pleasure and aesthetic result of viewing multimedia. Any analysis of such a work must offer sufficient leeway to account for the different agencies that spectators might recognize in their engagement with a piece.

The engagement of the spectator is central to the unique discourse of multimedia work; we might ask how different relationships between the spectator and the performative elements of a multimedia work influence its reception. To answer this question, I will examine multimedia work situated differently along the performer/spectator divide in terms of composition, meaning, and the construction of affect.

A large body of multimedia work involves only fixed media. These works are not able to adjust to live elements in their viewing situation. Their compositional dialog is best understood as originating in the intention of the composer or artist and manifesting itself as an abstract agency throughout the work. To represent this class of work, I will analyze *Read* / *cm: av_c* by Ryoichi Kurokawa. Another significant branch of multimedia situates live performers among media elements. In this work, the compositional dialog is often posited in

relation to the performer and to their gestures, accentuating questions of agency between the performer on stage and their scenographic context. Dumb Type's *Voyage* will serve as an example of this type. A third branch of multimedia work engages the spectator directly by collapsing the spectator/performer divide. In this work, usually referred to within the context of installation or event, the gestures of the spectator enter directly into its compositional discourse. For an example of work situated similarly, I will look to the *TGarden* immersive installations created by the interdisciplinary art collectives FoAM and Sponge over the course of 2000-2001.

RYOICHI KUROKAWA'S READ / CM: AV_C

Ryoichi Kurokawa is a self-taught Japanese audiovisual artist who has been actively producing work since 1999. His output includes audio recordings, work for screen, installations, and live audiovisual performances, in which he uses both digitally generated and recorded elements. Kurokawa defines himself as a time-based sculptor, working with digital materials. When discussing his work, he talks of a single audiovisual language in which sound and image are joined at the level of unit. After forming his associations, he is able to compose by enforcing a single structural dialog on both mediums. According to Kurokawa's website, for him this practice "shortens the mutual distance, the reciprocity and the synchronization of sound and visual composition".

Published on DVD in 2004, *Read* is a 40-minute audiovisual work whose material Kurokawa has been presenting in various combinations, internationally,

through 2007. In particular, his live audiovisual performance project *cm: av_c* consists of the visual material from *Read* projected over multiple screens with a live spatialization of the sound. Although Kurokawa's DVD is available commercially, he is primarily known for his live performances at leading digital media and music festivals and for his installations in gallery settings. His artwork is primarily experienced by spectators under live performance conditions rather than under the spectatorial modes of discourse at play when media material is viewed independently.

Read is an example of videomusic, a genre of visual music in which video and sound are composed together along the same organizational strategies as electro-acoustic composition. Kurokawa is one of an emerging group of videomusic composers or collectives who present their work, whether fixed or composed in real-time, in the 'live' context as audiovisual performance. Other such acts include: Ryoichi Ikeda, Herman Kolgen (previously skoltz_kolgen), SuperCollider, Luc Dubois, Defasten, Rechenzentrum, and 242 pilots. Unlike the previous generation of visual music producers, the dominant performance paradigm for these artists stems from audio culture rather than from cinema. They participate and are accepted both in the high art context and within the cultural economy of music.

Read is composed of ten short sections, each delineated by a pause of white or black space and silence. The sections correspond to all but one of the tracks on the companion CD, though they appear in a different order. Two versions of the same work are available on the DVD, with each section available

in full resolution or in a multichannel view, approximating one of Kurokawa's multi-screen setups. I had the pleasure of seeing Kurokawa present *cm: av_c* at Montreal's Mutek Festival in 2006, a performance in which a two-screen setup was used to disseminate the material from *Read* in a very close structural approximation to that on the DVD. I will discuss Kurokawa's work in the live performance context, but make reference to *READ* to speak of details of the composition as it is available for multiple review.

Kurokawa describes his artistic practice as one of mental morphology. He combines abstract and realistic images in his mind, and then sets out to construct the result using video footage of the natural world and synthetic digital animations that he creates (Vale). His memories and conceptions of nature play as great a role in the construction of his work as does his concrete footage. Afterwards, Kurokawa adds audio stemming similarly from field recordings and digital synthesis techniques. In his own words,

> "Nature is my principal source of inspiration, and has always been. Mixing in a hybrid way analogical material and digital treatments ... all my work lies on this notion of hybridization. Between analog and digital, but also between time and space, the full and the fragmentary, the simple and the complex, the reactive and the contemplative, the auditory and the visual" (Catala).

The first short introduction of *Read* appears before the DVD's title. This section entitled *read #read*, depicts a three-dimensional computer-synthesized form in shades of grey, from white to black on a light grey background. The form is a layered array of modeling polygons that follow the curve of the golden mean (figure 1). Footage of the form revolving has been edited to voice discontinuities: small jumps and glitches in position and speed, as well as short interspersed

segments in which the form has changed color or where it suddenly disappears completely, leaving only the light grey void visible (figure 2). The sound during this section is composed of two voices. The first, most obvious, voice is formed by a long stream of granular synthesis whose grains seem to converge with the complexity of the image. The second is a barrage of square-wave synthesized clicks and computer 'glitch' noises through which emerge small bursts of static and pitched material. These sounds function diegetically in the video. They coincide exactly with the movement of the form under Kurokawa's edits, and seem to result from the form's movements under the temporal and spatial manipulations of the video edits. Only at the end of this first section does the audiovisual dialog change. The abstract form begins to move disconnectedly from the music, while the granular voice repeats ad infinitum, the process disengaged.

Fig 1: The polygons follow the curve of the golden mean (01:39).

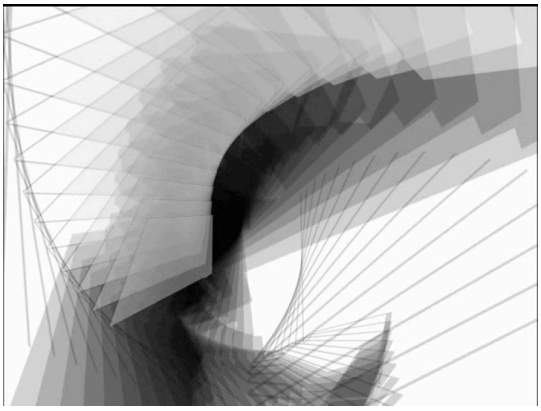


Fig 2: Short segments in which the form has changed color (02:10).

A similar gestural dialog exists in the rest of the work. Specific surface manipulations of the video plane (as opposed to manipulations of the representations depicted within the video plane), are synchronized with aural

events that reflect the nature of their interruption. The same is true for all temporal and spatial discontinuities resulting from the video's edits. Less synchronized supporting voices help to establish the emotional mood of the piece. These sounds at times too, synchronize and reinforce the visual movement of the depicted structures within the video. The audio and visual elements of *Read* are unified, often with observable structural relationships existing both at the level of edit and at the level of content. When asked by an interviewer whether he preferred to synchronize his audiovisual materials or play with their collision effects, Kurokawa answered that his interest in audiovisual complementation did not necessitate a strict synthesis of separate media elements, but that he tried to “conceive a space where two different materials coexist ... it means they have to be synthetic and enter in collision one with the other AT THE SAME TIME” (Kurokawa in Catala).

Michel Chion, whose treatise *Audio-Vision* discusses the role of audio in relation to visual imagery, names ‘synchresis’ the perceptually binding relationship between sound and image in which a sound accompanying an image is attributed as the sound of the image. In Kurokawa’s work both a synchretic dialog and a more abstract compositional one based on principles of relational movement and perceivable gesture can be discerned. The sounds that are tightly synchronized to the surface manipulations of the video seem to belong, synchretically, to those manipulations. The visual structures participate most often in a relational dialog of movement with the accompanying audio, rather than in a synchretic one.

Combined audiovisual gesture plays an important part in the compositional dialog of Kurokawa's work. Much of Kurokawa's material is created through audiovisual software instruments that he designs himself. Kurokawa uses these instruments to create and compose aural and visual gestures in tandem. This approach encourages a certain sense of responsive continuity within his structures. Kurokawa discusses his unified approach to composition in terms of synchresis and relational movement when he says that

> "this tactile approach allows [the audience] to go beyond the limits of [their] physical perceptions .. I try to treat those simultaneity and audiovisual stimulation principles in order to offer the audience an aesthetic as sensible as possible, on the basis of a synesthetic experience" (Kurokawa in Catala).

Kurokawa's interest in synesthetic correspondence is central to understanding his work, both in terms of its composition and in terms of its meaning.

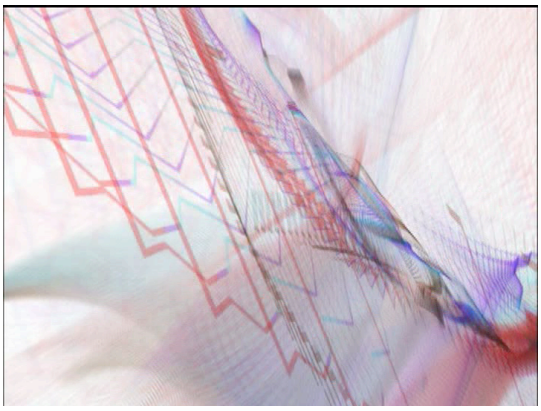
Cook examines the history of synesthetic correspondence principles between sound and image in the context of time-based composition. Two main types of organizational correspondence principles emerge from his study: dyadic ones where either the sound or image is modeled to the other's structure and triadic ones where sound and image both reflect the same external structure (Cook). Over the course of *Read*, Kurokawa manifests both. He creates a dyadic structural relationship between sound and image by manipulating the surface of the video image through complex filters to synchronize with audio events. A deeper, triadic relationship is also explored through his reflection of the natural world in the digital one. Kurokawa' uses patterns and forms from nature to structure his audiovisual material. While his visual material reflects natural

geometries, his audio material reflects temporal structures associated with these patterns and contributes a digital aesthetic.

Over the ten episodes of *Read*, a rock quarry, the ocean, flowers, images of urban decay, and many computer generated forms are treated successively to manifest this relationship between natural and synthetic structures. In *read #5* a semi-transparent three-dimensional model revolves and spins unpredictably in the frame (figure 4). This structure is similar to the one used in the introductory section *read #read*, however it is colored to reflect the more organic smoke-like footage of another previous episode, *read #4* (figure 3).

Fig 3: The organic smoke like footage of read #4 (20:45).

Fig 4: A semi-transparent 3d model revolves unpredictably (28:53).



Like the heavier looking, obviously digital model of *read #read*, the video of the model represented in *read #5* has been edited to manifest various spatial and temporal discontinuities, whose movements combine with the form's animation to reinforce key visual gestures. Also similarly to the first section, these gestures are accompanied by exactly synchronized audio material. In this case, the sounds of waves breaking against a shore are processed and arranged to reflect the edits and discontinuities of the video image. The wave sounds

compliment the movements of the three-dimensional model, so that they seem to resonate with the natural world. Because these movements evoke the earlier episodes of *Read*, this affect extends by association throughout the piece. This message is developed narratively in a following sequence: *readme #2*.

In *readme #2*, a still image of the ocean is spatially displaced through the three-dimensional model used previously in *read #5* (figure 5). The movement created through this displacement makes apparent the similarities between the synthetic form's discretely stacked polygonal shapes and the curve of the waves arrested in mid-motion (figure 6). The image of the waves is only animated through this displacement and yet; the natural movement associated with their passage is evoked.

Fig 5: A still of the ocean is displaced through *read #5's* 3d model (36:59).

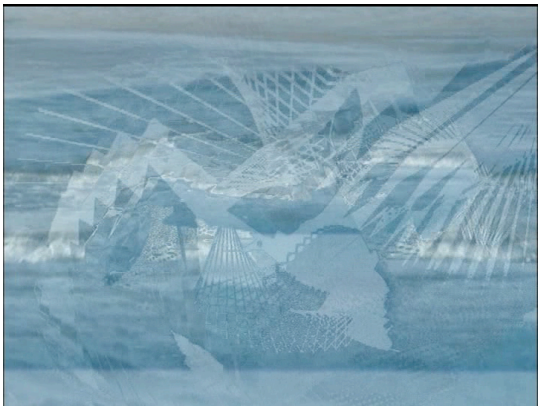


Fig 6: Similarities between the synthetic form and the arrested waves (37:33).

In *read #prelude*, cross-faded images of flowers are interrupted by vertical and horizontal blocks (figure 7). A scattering effect of pixel values is used in conjunction with slit-scanning, a technique which elongates individual pixels by copying their values successively in one direction, to give the overall effect of corruption to the digital signal (figure 8). An image of the flowers' contour is

occasionally superimposed over the image of the flowers. The picture is sometimes interrupted under the process of digital manipulation, and sometimes used to shape the interruption. All of these processes flicker quite quickly, suggesting noise in a single signal. Synchronized with these movements are short bursts of static, white noise, and digital glitch sounds. Delay processing is used in small enough temporal increments to synthesize new tones. These increments reflect the flickering nature of the manipulations, and convey a message of structural interference with the perception of nature. The interference is experienced as a conjoined audiovisual event on the threshold of sensory experience in which the multiple (noise) becomes singular. A perceptual correspondence is created between the luminous whole established within the retinal persistence of the flickering visual image and the arrival of a sympathetic tone created from the short delay loops that have been synchronized to the flickering movement.

Fig 7: The image is interrupted by vertical and horizontal blocks (05:16).

Fig 8: Slit-scanning and scattered pixels corrupt the image (05:37).

Kurokawa's live presentation of *cm: av_c* is dazzling. Along with synesthetic association, Kurokawa freely admits that his early compositions

explored “the retinal persistence phenomenon; those images that remain fixed in the retina under the effect of their excessive luminous visualization” (Catala). Though this effect is not the subject of *Read*, Kurokawa’s use of flicker and quick micro-edits combine disparate material into perceptual entities under the conditions of large-format projection. He admits to using video as a ‘luminous source’ rather than simply as a container for represented information. Kurokawa’s exploration of the physical affect of video opens up a new dimension for comparison between aural and visual gestures on the threshold of perception.

The sheer scale and immensity of *cm: av_c* contributes significantly to its impact. The loudness of the sound and brightness of the image overwhelm the audience, who are brought to the forefront of their senses in result. The audience experiences the work’s compositional dialog within a very short temporal window relating to their immediate sensory engagement. Under such conditions, Synchresis is experienced forcefully, as past modes of sensory engagement are erased. Kurokawa spatializes the sound to emphasize its motion, which takes place over the entirety of the performance space. The scale of the visual motion is also amplified according to the dimensions of its projection area, and even multiplied over sequential screens. The video is presented in almost total darkness, so that its brightest points are significantly scaled from the base condition of the room, and its contrasts achieve maximal affect. In *cm_v*, the scale of motion in dialog depends entirely on the presentation conditions of the piece.

Kurokawa remains on stage for the duration of his performance, where he makes minute adjustments to the live sound and spatialization. His presence on stage helps the audience to interpret the scale of his work and provides a non-trivial affective influence over its reception. The audiovisual gestures are experienced in relation to his presence on stage and to his own motion while listening to them. They are interpreted as an extension of him, and of his will as their composer. Kurokawa's body on stage is expressive. When he moves in time with the audiovisual dialog, he articulates cm_v's compositional dialog and conveys his own subjective experience of what part of the motion is most important.

DUMB TYPE: VOYAGE

The relationship between presence and the perception of inter-sensory compositional discourse is a complicated one. Multimedia work that situates live performers among media elements often posits its discourse in terms of agency. Compositional gestures are experienced in relation to the performers on stage and understood as either emanating from their actions or as a result of an external force. One group who has extensively explored this division in relation to live stage performance and the production of inter-sensory gesture is Dumb Type.

Dumb Type began as a radical interdisciplinary art collective of approximately fifteen people who formed under the direction of Teiji Furuhashi around Kyoto Art University in 1984 (Martinez 2). Among its members were

musicians, architects, visual artists, choreographers, and computer programmers, all of whom shared a desire to challenge the complacency of the art world in which they found themselves residing. From the beginning Dumb Type's interests were political and social as well as aesthetic. Positioning themselves in opposition to the prevalent social political apathy and rampant consumerism in modern Japanese culture, the name Dumb Type refers to a society "overstuffed with information but cognizant of nothing" (Lufty 127). The name has also been said by the group to communicate their "desire to create without words" (Dumb Type website).

Dumb Type have committed to a fervently interdisciplinary practice in which the multiple skills of their members can be put to constructive use. Their output includes art exhibits, installations, performances, and audiovisual material, as well as modified physical surroundings, symposiums, concerts, and text-based publications (Culture Base). Their strong desire to transgress the boundaries between disciplines has manifested a large body of work often difficult to categorize. A piece might be presented in multiple forms, each incorporating a different section of related material. In fact, it is the demands necessitated by touring and for presentation in international venues that have molded Dumb Type's work towards the paradigm of performance. This context situates the group's work alongside the avant-garde of cross-disciplinary, technology-based theatre and dance works, such as those created by The Wooster Group, The Builder's Association, Robert Lepage, and Troika Ranch. Dumb Type's work also inherits from the dialog of modern architectural practice.

Often incorporating electronics and specific architectural detail, dubbed 'architectronics', Dumb Type are known in Kyoto for spending weeks or even months physically preparing a space for their use, sometimes completely restructuring the interiors of locations to meet the demands of their work.

Over the course of their major works of the nineties, Dumb Type's thematic concerns steadily and consistently evolved. Beginning with a sharp critique of the human experience under a culture of consumerism and media saturation, their focus turned to the exploration of the frailty of love and tenderness under these same mechanisms. Their most important work includes an exploration of the harsh mediatized reality of AIDS in *OR* (1997) after the death of Furuhashi from HIV-related septicemia. Dumb Type followed this work into the investigation of death as viewed from the same consumption and technology-heavy paradigm with *Memorandum* (1999), exploring the nature of memory as mediated through the technological apparatuses we use to document our lives, and *Voyage* (2001), which explores the post-body experience (Neave 85). I had the pleasure of seeing *Voyage* mounted at Montclair State University's Alexander Kasser Theater on October 19th 2008. While discussing *Voyage* I refer to an unpublished video sent to me by the group for this purpose.

Throughout Dumb Type's performance work, recurring concerns have erupted in regard to their use and investigation of media. Major themes include the use of sound and video as immersive scenography and as performative elements that convey a presence on stage. *Voyage* unifies these concerns. It uses sound and video to create an immersive environment for the performers

that itself engages in the gestural dialog of the work's composition while reflecting a dynamic sense of agency. The roles of the performers on stage and their scenographic environment are de-constructed and become porous. The affective discourse of Voyage is an extension of this interplay. Inherent in the piece is an understanding of the experience of media saturation and the physiological affect it conveys to the audience.

Voyage divides into thirteen vignettes, each of which relates to themes of travel, loss, exploration, and identity. The vignettes are independent but inherit context through proximity. A rough, emotional narrative emerges from the sequence. It begins by expressing the vulnerability of the body in relation to the endless world outside and continues, through the desire for and eventual journey into, the unknown beyond identity. The unknown here, is not simply the state after death but the transition outside of the senses and the physical mediation of reality; the desire for voyage is not only the uncomfortable state of the human condition but a recognition of the body's limitations, and of the allegiances of identity beyond the corporeal. This narrative is communicated through several kinds of physical theatre as well as through dance and the work's media elements.

The piece's choreographic and compositional discourse incorporates the performers, video, sound, and even the stage itself into its design, so that *Voyage* can be evaluated as much for its inter-sensory gestural interplay as for its narrative continuity. My interpretation of Voyage's narrative is heavily influenced by the radical shifts of engagement that occur between the performer

and their external environment within the composition. These radical shifts of engagement correspond to different modes of agency that manifest through shared compositional discourse, so that a single gesture might trace a path beyond the confines of the body into the external world. Rather than simply occurring between the scenographic media and the live performers, these gestures alternately turn the external world into an extension of the live performers movements, invert the relation between performer and scenographic context, and turn performers and their environment into equally weighted parts of a complex choreography. This latter situation describes the piece's final vignette in which a single female dancer performs movements derived from traditional ballet.

The vignette begins with the fade-in of an ambient drone suggestive of large machinery and the projection of a radial navigation map in light blue on a black background. The video fills the back wall of the stage and is duplicated perfectly across the stage's reflective floor to envelop the entire performance space, making its scale massive. A dividing mirror line is created where the floor hits the screen. Two planes of movement extend from the reflection's center line. They multiply, as the video image becomes one of intersecting geometries, traveling independently. The dancer is immersed within this environment, minuscule and static by comparison. She is often visible only in shadow; no light but that from the video's projection separates her from its ambience (figure 10). Her movements synchronize with the turning patterns on the screen. She seems only a part of a greater machine.

The dancer's speed compliments that of the movements around her. A pulse in the audio is introduced quietly and a large circle in the center of the video darkens, to display a magnified detail of the annotated map that surrounds it. The map detail within the circle roams separately from the rest of the video projection. For a prolonged moment, the dancer's outstretched arms seem to cradle this circle, positioned as they are just below it (figure 9). The moment dissolves as the writhing world around her convulses once more from a new movement being depicted within the video.

Fig 9: For a prolonged moment it looks as though the dancer is cradling the circle (01:06:14).

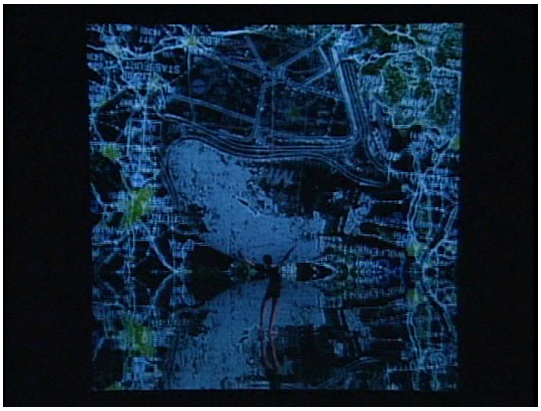
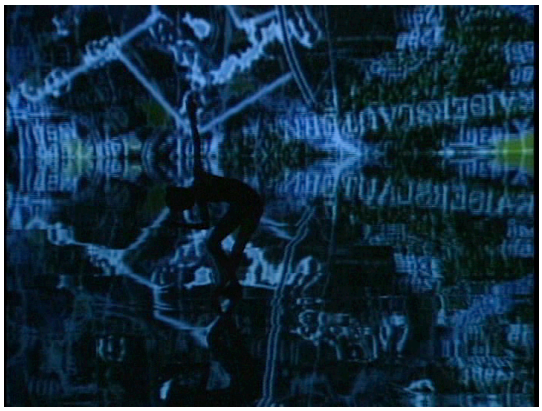


Fig 10: The dancer is often visible only through her shadow (01:04:56).



In this vignette, the video is used both as a scenographic element and a performative one, contributing to the relational movement perceived on stage. The video also illuminates the stage. In its scenographic role, the video surrounds the dancer and places her within a contextual environment of moving maps and figures. When both the dancer and the video move together, the video reinforces the lines of force made by the dancer's body. These gestures strike the most impact in the vignette. Other movements, such as those of the circle centered in the video plane, or the dancer's solo gestures, do not command as

much attention. The main dialog of this vignette becomes one of similarity and opposition, of relational movement, between the lines of force created by the moving body on stage and those depicted in the environment around her.

The most dramatic changes appearing on stage during this vignette are created by the video and its reflection on the floor. The dancer is purposefully obscured, by semi-darkness. Her movements are slowed to a rate far less engaging then the high-contrast movement of the video. The dancer's visual obfuscation allows her presence on stage to fade until it no longer dominates. She draws the audience's attention because the context of live stage performance favors the performer, and because agency is most easily attributed to human intervention. Neither the performer, nor the video, nor the sound seem to originate the gestures that transpire in between them, rather the gestures co-join their separate spheres of influence. The composition flattens the distinction between the dancer and her environment in the moment of its expression, giving rise to the vignette's affective discourse. The agency that is expressed within this inter-sensory gestural dialog is the abstract will of the composer.

Shared compositional gestures between performer and environment do not always reflect an external agency. In the sixth vignette, the agency extends from the performer. After emerging from a crowd of stewardesses, a man stands in the middle of the stage. He is wearing only white underwear and socks, a life-vest, and a motorcycle helmet. In front of him he holds a silver platter upon which is bobbing a model airplane, suspended above by a thin silver wire. The world around him is blue, created by the single color video projection behind him and

reflected off the floor below. As the man begins to trace paths in the air around him with his model airplane, moving footage from a live camera inside the airplane is superimposed against the blue of his environment (figure 11).

Fig 11: Moving footage from a live camera inside the airplane is projected around him (39:54).

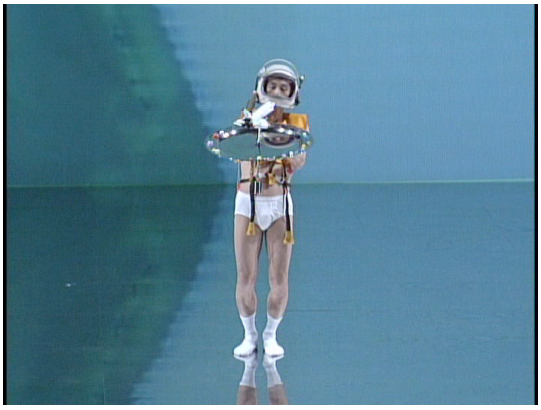


Fig 12: The man moves with the dancers but the text remains fixed (41:39).

Though the man looks to be only playing at flying, the voyage he is describing is real and is taking effect around him. Light jazz music plays and several female performers dressed as stewardesses come out to dance. The man bobs lightly in time to the music and occasionally follows the dancing girls. His rhythmic motion is reflected in the video environment within which he resides, establishing a relationship between the pulse of the audio and the moving scenography. Mixed with this footage is a sequence of shifting alphanumeric characters whose positions do not relocate with the performers actions. These elements ground the projected video environment and contrast strongly with those elements in the visual field that continue to move along with the performer, enhancing their perception of shared structure (figure 12).

In this vignette, the movements of the man on stage and that of the visual world around him are directly linked. It is clear to the observer that the

movements of the video are an extension and amplification of those made by the performer. Visually, the gestures communicated through the moving footage relate to his. The depicted footage moves in an exact mirror reversal of his motion. It follows the gaze from the cockpit of the toy where the camera is housed. The relation of these gestures to those of the performer is disorienting and complex; the overall affect is one of dissonance because of the contrasting scale and motion. The performer's gestures are translated into his environment where they demonstrate a physical change in perspective. They draw attention to what otherwise might be visually unimportant on stage: the movements of the model airplane rather than the greater movements of his body.

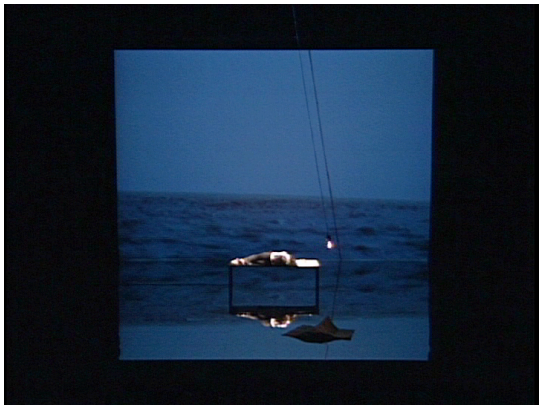
The scenography of the vignette reacts directly to the performer's agency. The expressed compositional dialog is mediated through the performer's movements, which are extended into the environment around him. A semantic meaning can be derived from the inversion of his gestures when reflected through his environment: the outside world does not function, as does a body. Agency outside of its host is alien.

Dumb Type develops a relationship between the intimate context of the body and the external environment in several ways. A previous vignette, the third, starts with a pendulum-like gesture across the stage. A lamp swings over-head, suspended from the ceiling, under it a woman cuts something out from a large map. Her figure is revealed through the lamp's light in a parallel movement below its swing (figure 13). We hear her folding and unfolding the map accompanied by periodic white noise reminiscent of the sea. The lamp goes out

and the woman disappears into blackness. The remaining audio continues the narrative until a video projection appears on the screen (and across the floor's reflection). The projection depicts a rocking world of waves whose movements appear but slightly delayed from those of the still swinging lamp (figure 14).

Fig 13: The woman is revealed in the light of the swinging lamp (21:45).

Fig 14: Rocking waves appear slightly delayed from the swinging lamp (23:19).



The performer climbs onto the table that has been revealed beside her in the projection's light. She lays her body across it with her back to the audience, surrounded by props such as her map and a large pair of scissors. The sound of a typewriter echoes loudly. In the projected video around her, a shot fades in of a woman lying across a table typing, mixed in with other scenographic footage of the sea. The sound of the typewriter corresponds with the keys that depress in the video footage. The camera shot is a live feed of the woman on the table taken from above. It reveals her typing: an activity that cannot be seen from the audience's perspective (figure 15).

The local environment of the performer becomes a dynamic part of her larger environmental context in this vignette. The agency that is expressed within this depiction is diffuse: the movements stem from the performer, but the gaze of

the camera is separate, beyond her control. The footage of her performance becomes a detail of her environment, its entrances and exits timed within a greater composition that includes the motion of water and the swing of the lamp above her, as well as her own body's movement as viewed from the perspective of the audience. To the audience, the performer's influence over her environment is reciprocal because her actions are only revealed through the process of their mediation. The woman has opened herself to the suggestion of the physical world around her. She is extending past her physical self, and in doing so, the distinctions between her body and the outside world are dissolving. Finally, imagery related to the typewritten message overtakes the projected image (figure 16).

Fig 15: The woman's local environment becomes her scenographic one (24:12).

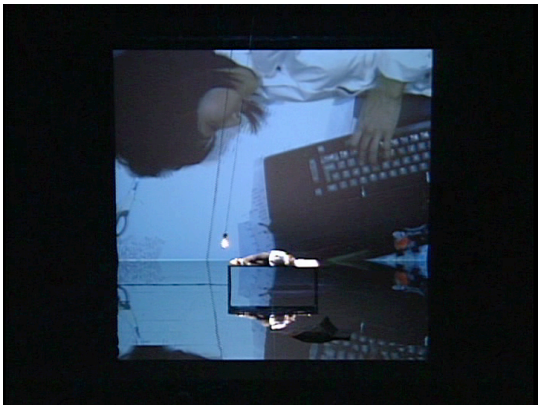
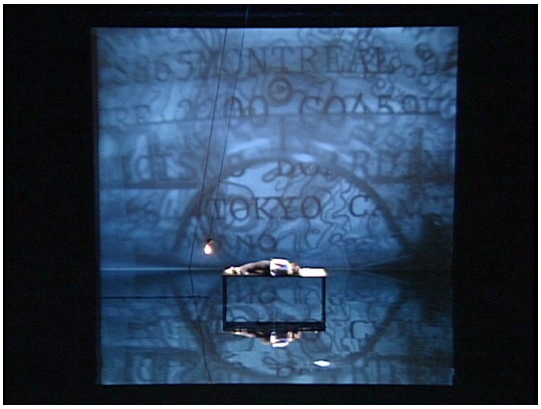


Fig 16: Imagery related to the typewritten message overtakes the projected image (27:42).



In the previous examples, the agency of a performer is perceived behind a gesture within her environment because the gesture is derived from her own on stage. Dumb Type plays with this notion of 'live' media, playfully reversing the relationship between scenography and performer. The fourth vignette begins with a female voice saying, "I wish I were an angel". A sudden burst of loud white

noise ensues, along with a proliferation of shifting ASCII text, traveling horizontally down the screen. This imagery is quickly replaced by the sounds of bird and foliage and a projection of green trees being blown in the wind, as seen from above. A black oval is discernible within the center of the stage, interrupting the reflection of the video across the floor. The voice continues: “White wings, an innocent heart and a beautiful smile. No one can see me, but I can talk to everyone. I wish I could always make people happy”. Ambient sound interrupts this dialog, and then: “I wish I’d go to heaven very soon”.

Fig 17: The woman wears a floral dress and is reclining on her back in the midst of the arctic landscape (31:53).

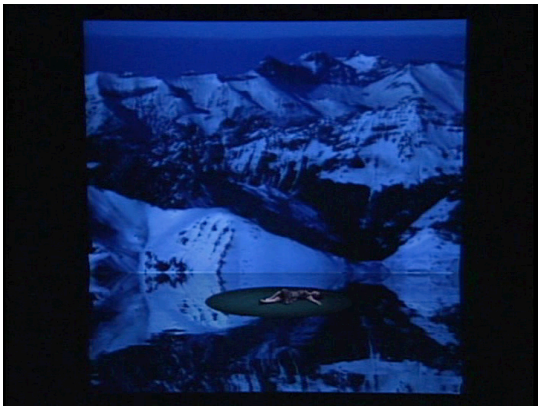
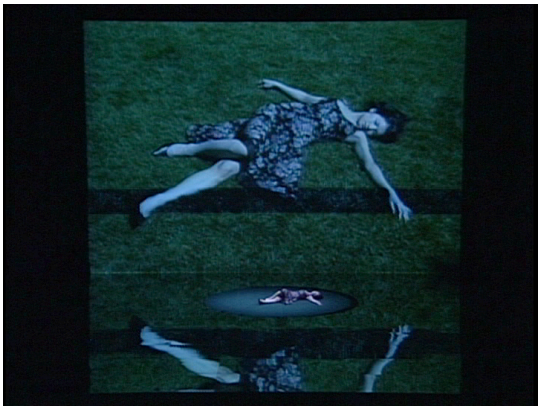


Fig 18: The woman's lips move on the bed of grass though her projected double stays silent (33:33).



The ambient sound rises from the background in a sudden sweeping gesture that drowns out the vocal text. The video image is replaced by an arctic landscape with a less prominent aural accompaniment. The voice continues with a stream of dialogue, each beginning with the phrase “I wish”. In time, a soft light illuminates the black oval that rests within the center of the stage and we see a woman there. The woman wears a floral dress and is reclining on her back (figure 17). After another sudden raise in the ambient sound, a sudden silence occurs, accompanied by blackness. Soft synthesized tones swell in a slow

rhythmic progression. Projected on the screen is an image of the same woman as on stage, lying in a field of grass. The projected image suggests a real-time camera feed, positioned from above the stage; however, the woman's lips move as she voices her list of desires. Her projected double stays silent, lying backwards on the grass (figure 18).

In this vignette, the main performer is an accessory to the aural and visual compositional discourse that takes place around her. She is framed and completely enveloped by the massive projected image and its reflection on the floor, and appears to be floating within it, under the current of the video's motion. The compositional discourse contributes to the development of the narrative and is created through relational movement. It is interpreted, in scale and in meaning, through her presence on stage. For most of the scene, the performer is cloaked in shadow and a relation between her lips and the spoken text is not established. Even though we eventually see the performer's lips moving with the text being spoken, the text is amplified, and it is unclear whether it actually stems from her body. Instead, it resounds among the large projected bod(ies) that surround her.

The video plays a complex role in the narrative. First, it serves as a primary performative element, then as scenography. When the video portrays the performer, it appears to voice her agency and function as a live extension of her situation on stage. Over the course of the vignette, the video becomes the 'real' scenario, with the one on stage a depiction of the character's inner dialog. All of the action takes place in the on-screen environment around the performer. Her presence on stage becomes a prop to contextualize the action. The dim lighting

and complete stillness of her performance is purposefully designed to require little attention from the spectator so that the projected video can hold narrative dominance within the scene. The audience begins with their attention on the performer and then, as the vignette continues, their attention transfers to the interplay between projected image and sound. The performer and her environment exchange narrative primacy.

A horizontal band of darkened color disturbs the projected video image. It scans downwards along the screen, displacing the picture behind it, and meeting with its reflection where the screen touches the stage floor (figure 18). After a slight pause, the darkened band of color reappears at the top of the screen in a cyclic motion. Synchronized with this inward-traveling movement on stage, is a dark rumble accompanied by a quick high-pitched pulse. The pulse is timed to the band's passing of the screen's center. These sounds play counterpoint to the tonal swells that still repeat within the work's audio component. The woman's list of desires turn towards her unfulfilled longing for a lover, described to the audience as 'you'. She wishes sadness upon this lover for her rejection, and, as if in reply, her environment reacts. The women's voice continues, but after a dark pause, a sudden burst of light emerges to illuminate the stage. Everything goes dark once more.

Outside location noise and the image of a park fade in together. ASCII data streams horizontally in both directions to fill the screen. The image alternates blue and green fields of color filled with text and a blue screen containing dark horizontal banded areas. The audio for this section is mostly

white noise. Loud digital error sounds coincide with the dark horizontal banding on the screen. These events appear as interruptions. The performer on stage continues to lie in a calm pose and to list her desires while the stage area is bathed in a grey-blue from the projection. A large noise burst is followed by the deep royal blue color of a Microsoft Windows operating system computer crash. ASCII text fills the screen and the words form: “I wish I wish I wish I wish...” (figure 19). When the woman leaves the stage, she is only a black shadow standing over a black hole in an endless sea of blue (figure 20).

Fig 19: The royal blue of a Microsoft Windows operating system crash fills the projection (35:39).

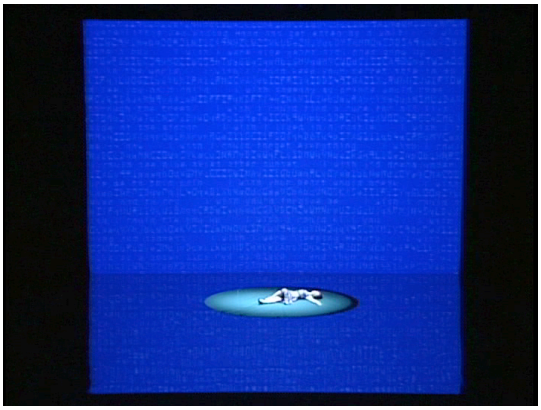
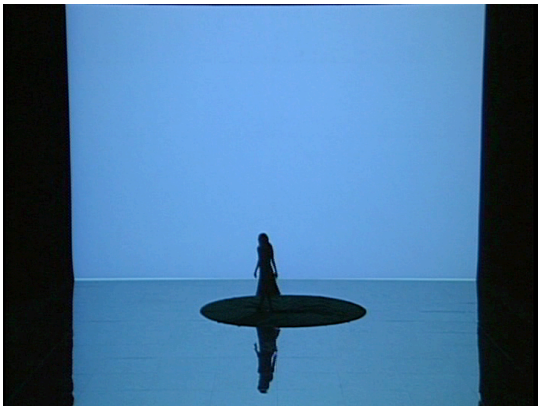


Fig 20: When the woman leaves the stage she is only a black shadow standing over a black hole in a sea of blue (38:27).



The obvious narrative interpretation to this sequence is that the human process of continual desire does not result in meaning or satisfaction. The performer’s stillness is intensely apparent during this segment, as she is highly visible under the video’s illumination. The contrast of her stillness with the intensity of the audiovisual gestures that surround her rends the performer from passive participant to witness. The performer’s stillness becomes the strongest statement on stage, an active one, for which the surrounding media elements again serve as scenography. The flashing light derived from the video, and the

immense kinesthetically charged rumble of the bass-frequency audio, add to this dialog of stillness and movement. The affective discourse is one of alternating voices; a conversation developed through the realm of immediacy.

The compositional discourse of *Voyage*, relies on the perceived agency expressed within the work's inter-sensory gestures for its affect. It extends the performer into their environment, offering new meaning to his or her physical movements on stage. To the spectator, the performer's body mediates the audiovisual and kinesthetic discourse of the production, which is perceived in relation to the performer's actions. The audience's spectatorship is kept separate from the production's compositional dialog, even while it constructs the mechanisms by which the dialog is perceived. By comparison, *TGarden* collapses the distinction between the audience and performer. It further explores the construction of meaning through agency by exploring agency through the locus of spectatorship.

SPONGE AND FOAM'S TGARDEN

TGarden was the name given to a series of immersive media environments, constructed together by two related art collectives, Sponge and FoAM, between 1998 and 2002. Sponge was a transdisciplinary art collective, founded in 1997 by Sha Xin Wei, Christopher Salter, and Laura Farabough in San Francisco, California. The collective evolved from a Stanford University Humanities Center seminar on media interaction entitled "Interactive Media: Theory and Technologies of Representation". The seminar was co-organized by

Sha Xin Wei who holds a PhD in Mathematics, and featured students from computer science, the humanities, theatre, and computer music, as well as participants from nearby Silicon Valley corporate technology institutions such as the Xerox Palo Alto Research Center and Apple. The core members' felt they were "pressing up against the epistemological limits of their own disciplines" of performance, mathematics, computer science, and music (Salter and Sha 3). They set out to turn their seminar discourse into praxis through aesthetic and phenomenological experiments constructed to derive "compelling conditions which enable people to make their own meanings out of built spaces and environments" (Salter and Sha 3).

The history of FoAM as a collective is purposefully obscured. Instead, a dynamic membership and shifting network of affiliations is emphasized within their documentation. FoAM's website describes their collective as:

> "a thick mass of bubbles, formed either by rapid agitation, or slow fermentation of gasses, liquids, or solids. FoAM is a similarly thick mass of bubbles, where the bubbles are formed by individuals, collectives, organizations and communities. The 'substance' that connects all 'bubbles' at FoAM is our motto - 'grow your own worlds (FoAM).

The collective was founded in 2001 out of the ashes of Star Lab, a Blue Skies arts and technology research facility in Brussels, with Maja Kuzmanovic playing a central role. FoAM have since expanded to include a loose network of artists and researchers elsewhere throughout Europe and abroad, with offices maintained in Brussels, Amsterdam, and Singapore. Currently, FoAM's core members in Brussels are Kuzmanovic, Nik Gaffney, Dave Griffiths, and Lina Kusaite. The mission of FoAM is to "provid[e] a context and a structure to research, design

and reflect on transdisciplinary creative practices" as well as to build sustainable and ethical participatory culture at every level. Their activities include the research and creation of: "experimental situations, responsive environments, active materials, generative media, culinary performances and other forms of participatory culture" (FoAM).

Both Sponge and FoAM actively pursued lines of enquiry relating to notions of material agency, ethico-aesthetics, and participatory collective behavior leading towards the production of meaning. After two years of initial exploration, during which time Sponge performed experiments to test the border between gesture and performance, the group began to investigate immersive installation as a way to encourage embodied behavioral reactions. This line of research ran parallel to Kuzmanovic's interests, then artist in residence at Star Lab, and her dialog with Sha on public spaces and participatory behavior (Sha and Kuzmanovic).

TGarden was originally to be part of a three work exhibition by Sponge called M3, that included two other works: Sauna and Puzzle, which offered respectively a critique of the informatics world-view and a full immersion into the realm of perceptual experience (Salter and Sha). The complexity of the three works made them difficult to simultaneously realize under available financial and human resources. Kuzmanovic joined work on *TGarden* in 2000, later involving her collaborators in Brussels (Salter 2009). Together, Sponge and FoAM mounted at least four official *TGarden* installations, including V2-Rotterdam and Ars Electronica.

TGarden is a responsive environment in which visitors become performers as they:

> "shape [the] media around them through improvised gesture, play and social interaction. The project investigates how people individually and collectively interact with and make sense of a responsive media space by articulating their knowledge non-verbally. More specifically, the project examines the process of meaning making as a complex relationship between the production of gesture and movement and the resulting audio/visual responses that ensue from solo as well as group motion and action" (Ryan and Salter 1).

Participants begin in private dressing rooms where they don elaborate costumes of sculptural proportions (figure 21a, 21b). They are told nothing about what is to come, but are instead submerged into the ritual of the event. As they enter the curtained off space of the installation, the audiovisual environment around them reacts with their movements (figure 22a, 22b).

The costumes have been pre-fitted with hardware enhancements, allowing the installation's software system to track the movement and gestures of the participants through low-level data collection of acceleration along key parts of the costume. Each performer controls a separate voice within the generated audio of the environment. The audio also responds to collective behaviors within the group and its reactions evolve over time in response to the history of the whole room. Video textures that respond to the movements of the participants are projected along the floor and walls. These textures depict processes inspired by physical transformations such as boiling, coagulation, and incision, and are the sole means of illumination within the space. The movements of the participants literally change the visible topography of their environment as a result of the projected texture's dynamic variation.

Fig 21a: TGarden costumes from Ars Electronica 2000 (FoAM).

Fig 21b: Participants wearing the TGarden costumes at Siggraph 2000 (FoAM).

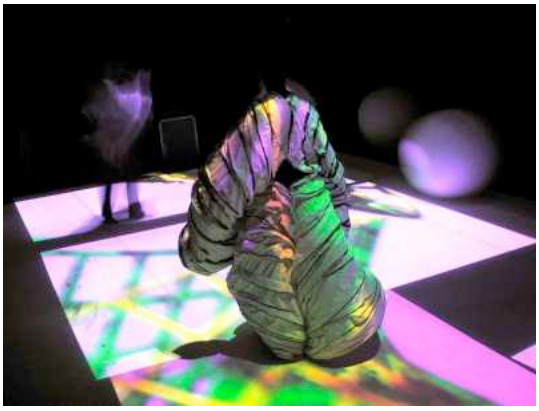
Because of Sponge and FoAM's intense hybridization of the aesthetic and socio-political dimensions of research and creation, *TGarden* can be situated in relation to both other experience-based art works and to critical lines of philosophical and social discourse. Myron Kruger's augmented reality installations are oft-cited precursors to *TGarden*, Kruger being the first to posit that the proper medium of a response environment is not in the content with which the response is implemented but rather in the responsitivity itself (Sha et al. TGarden Media Choreography System 2). Sponge explicitly rejected work in the domain of 'Virtual Reality', where the players' attention was directed towards mobile screens and not to the physical world around them (Sha et al. Demonstrations of Expressive Softwear and Ambient Media 3). Instead, drawing inspiration from the development of real-time musical controllers and the accompanying compositional discourse within the field of Computer Music (Salter 2009). According to Sha and Kuzmanovic, *TGarden* was motivated directly by such social philosophy as the work of Karatani on the collective construction of meaning (3), Hakim Bey on the integration of life and art (5), and Hendriks' work

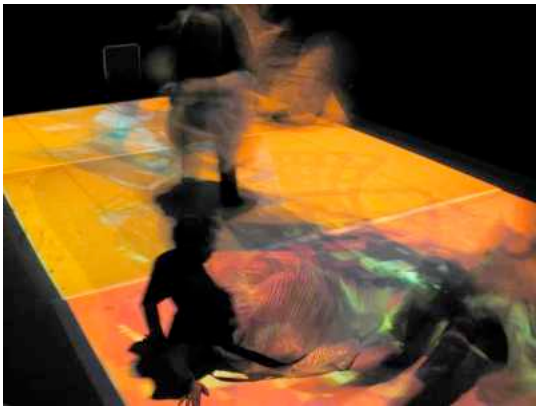
examining children's play and the role of re-purposable media such as water or sand (Serita et al. 2). Positioned at the crossroads of performance and social philosophy, "TGarden is grounded in an explicitly phenomenological approach that sees the production of human agency and meaning making as a process of embodied action" (Ryan and Salter 2).

TGarden is the first of FoAM *t*series* productions, which include *txoom* (2002-2003), and *trg* (2006-ongoing). Although a discussion of the entire *t*series* is relevant, I will discuss *TGarden* because of the significant amount of documentation and publications available for review. Further, although I have never personally experienced any of the *TGarden* responsive media environments, I have had the opportunity to be involved in several next-generation research efforts by Sha Xin Wei. As a result of my previous involvement with his current research group, the Topological Media Lab, I have had access to both documentation and technical explanation of the *TGarden* environments. I refer to the available papers and audiovisual work published by Sponge and FoAM in this analysis, to audiovisual documentation excerpts from the personal collections of both Sha Xin Wei and Christopher Salter, as well as to short interviews with both Christopher Salter and Yon Visell (who designed much of the room dynamics). *TGarden* never achieved full-functionality, and remained an incomplete work. The examples I reference in my analysis, however, are taken directly from documentation of the *TGarden*'s actual installations, and demonstrate the success of the project.

In its composition, *TGarden* is a state-based environment in which the movements of its participants generate 'energy' that attracts the system towards one or another of its pure states. If the energy of the system is maintained, the state will slowly 'drift', evolving towards new behaviors that in turn encourage participants to react differently. Although the most common state of the system corresponds to an empty, or low-energy environment, there is no specific beginning, middle or end to the system's topography. Instead, the states evolve inter-connectedly according to a mixture of past behavior and the system's current analysis of incoming data.

Fig 22a, 22b: Stills from documentation of the Los Palmas TGarden installation (FoAM).





The metaphor describing each state draws analogously from alchemical transformation and from physics. One state differs from another in terms of 'pitch' – the excitability of the audio and visual software instruments, the specific mappings employed, and the projected textures and sounds that the software instruments produce in their reactions to participants' movement. The system evolves over several temporal and social scales, taking into account both 'local' and system-wide variables. The composition of the environment at any given

moment can be credited to the system itself, to the performance of the participants that shapes the system's responses, and to the past state of the system over its evolution.

Gestures in the *TGarden* environment are derived from the participants' bodily movements, which in turn are a reaction to the changing environment as well as to the performance of the other participants. The over-sized balls used as props, the elaborate costumes and rich media textures encourage a playful atmosphere, whose success relies completely on the willingness of the participants to physically improvise. Without creating an association between their own physical bodily movements and the aural and visual gestures in the environment, participants are unable to engage with the piece except on a superficial level.

Both FoAM and Sponge stress in their publications that they use gesture tracking, not gesture recognition, in the software level of their experiments. Gesture tracking encourages participants towards the new formation of individual and collective means of expression through their own improvisatory play, rather than towards pre-defined gestural expressions that are represented internally within the software. This flexible approach bypasses the computationally expensive layer of system-model processing that would necessarily color the participants' performance (Sha 42).

Rather than bias the *TGarden* system towards the recognition of specific physical gesture, the designers use the details of the costumes themselves to direct the performer's movements along physical constraints. This technique is

especially effective because, as participants playfully explore the full range of movement offered to them by their costume, they find their 'voice' within the system's audio feedback. The responsive audio and visual instruments developed for *TGarden* are designed as continuous, pseudo-physical models whose behaviors scale consistently. They respond to all input, and so no gesture will break an instrument, being at most auxiliary. The use of continuous instruments, allows for both nuance and virtuosity in participants' gestures, through the process of adaptation and learning. Participants are provided the means for individualistic bias of expression, capitalizing on the modes of production that they have already developed in their natural lives.

In one example captured within Sha's Topological Media Lab's published *TGarden* documentation, a man jumps and notices that the grid of light projected over him 'bounces' against the floor, accompanying his movement (figure 23a, 23b). The man jumps again, clearly watching the video grid react with his jump. After confirming the grid's connection to his own gesture, the man initiates a long sequence of jumps that take him around the performance space. During this time, his attention travels from the grid along the floor to the rest of the environment around him. The man has determined that the grid instrument reacts when he jumps and so he has incorporated his 'jump' gesture within his improvised performance. He is now free to investigate the rest of the instruments around him or to direct his attention towards the other participants, reassured that at least for the moment, the grid will continue to react with him when he jumps. In the man's subsequent exploration, jumping is a gesture that he often

returns to. His performative history, established to include this gesture, inspires his other movements within the play space.

Fig 23a: When the man lands the grid beneath him becomes dense (TGarden Hopskip 00:17).

23b: As the man, seen in shadow, jumps the grid beneath him becomes sparse (TGarden Hopskip 00:21).

In the reactive projected video instrument described above, a scaling of the grid's size and thickness is used to demonstrate its bounce along the depth of its projection. The grid's movements describe a physical ballistics, which cause it to build momentum and continue after its initial perturbation. It moves with the same speed and recoil of the man jumping, inheriting the qualities of his body's physical reaction from the sensor readings embedded within his costume. By reacting to these sensor values exactly, the instrument does need to have an internal model of a 'bounce'. Instead, the instrument need only have a set of continuous associations between its own parameters and the data, which it is sent.

The mappings can be system-state dependent or they can change over time. Other gestures, such as a squat, might engage the instrument similarly, but since a jump is the gesture that the man associates with the grid's reaction, it becomes the basis for his engagement. The man is able to extrapolate from the

results of his gesture and improvise accordingly. He can improve on his initial jump to get a more pleasing result from the grid instrument and can compose his jumps over time to form a sequence of directed result. Any adjustment that the man might make involve his reacting to the kinesthetic-visual association of his own physical movement and the visual feedback he receives from the projected video instrument. The man's gesture is evaluated cross-modally between his senses.

The participants embody the gestural compositional dialog within the TGarden environment. Their physical movements acquire separate meanings from those that might arise under the modes of production active in the everyday. Instead, the movements of the participants mediate the *TGarden*'s compositional discourse, so that, in making a gesture, a participant shapes the environment through their own agency. In return, the movements of the participants are themselves derived through this interaction with their environment. The participants' gestures are a direct response to the clothing they wear, and to the collective performance that is emerging out of their group. Most of all, the participants' gestures are a response to the inter-sensory feedback that each participant receives from the system's functionality and evolution in regard to his or her own movements. The participants experience the gestures that manifest within the *TGarden* space as a unified extension of their own. They are experienced cross-modally, between different sensory engagements.

Susan Broadhurst discusses the relationship between body and technology in her book *Digital Practices,* by implicating the philosophy of

Merleau-Ponty and his understanding of perception and corporeality. For him, “to have experience, to get used to an instrument is to incorporate that instrument into the body” (Broadhurst 23). Broadhurst points to the experience of participants under reactive technologies, claiming that such technologies both frame and extend the senses of their users. In conclusion, she states that “rather than being separate from the body, technology becomes part of that body and alters and recreates our experience in the world ... technology and instrumentation extend the body by altering and recreating its embodied experience” (24). To continue from Broadhurst’s language, the affective discourse of *TGarden* is positioned within this reconfiguration of embodied experience.

Within the *TGarden* environment the experience of compositional gestures stem from their kinesthetic motivation within the participant as much as from their responsive engagement with the participant’s movements or from their material, physical attributes in the external environment. Participants’ movements are both framed and extended by the reactive abilities of the media instruments that surround them. The embodied experience of this mapping fluctuates with the mapping itself. *TGarden*’s multi-state framework provides an evolving experience of embodied technology, active over several temporal and collective scales. The affective discourse of the work is derived from these evolving embodied sensory experiences, so that participants are able to experience a sort of loose narrative of being, in which their varying sense-bodies intersect with the constructed environment around them in the context of their performance.

Fig 24a: A man raises his arms as if he is making a snow angel (FoAM – TGarden 03:48).

Fig 24b: The woman emulates the man's gesture (FoAM – TGarden 03:50).

It is obvious when a new embodied sensory experience overtakes the participants. In the video published in 2008 by MediaArtTube, two participants start to synchronize their gestures. In the depicted fragment of the experiment, one participant, whose costume has particularly wide sleeves, spins in a slow circle, listening to the resulting change in the audio that accompanies him. His arms are at his sides, spread widely apart. After completing a full circle, the man widens and contracts the distance between his arms above his head, making a gesture reminiscent of snow angels (figure 24a). He associates the change in his audio environment 'voice' with the movements of his arms. At his side, another participant turns toward him, intrigued by his gestures. She too begins to flap her arms in a similar form above her head (figure 24b). As the two participants start to approach the same periodicity, the overall pulse of the generated music slows to their speed. The audio response to their shared movement has a profound influence on the two participants, who attempt to continue their shared sense of rhythm over their subsequent individual improvisations.

After noticing their collective response, the two participants shift the meaningful dialog of their movement creation to incorporate shared periodicity. This shift does not stop them from experimenting with their individual gestures, rather their continued movements embody this new experience. Once they have attributed meaning to the collective mode of production, the participants are free to articulate it within their individual performances so that their gestures are now informed by this new awareness. The embodied experience of the participants has changed, and in result, their performance takes a new affective direction informed by the experience of collectivity. The compositional dialog of the performance is extended to one of relational movement between the individual associations of performers' gestures within the environment, and the collective changes that emerge from those same gestures.

CONCLUSION

In *TGarden*, unlike *Voyage*, or *cm: av_c*, the spectator is the performer. It is the participants' gestures and improvisations that structure the composition around them and in turn are emphasized in their experience of the composition. The work incorporates the spectator's experience of creation as well as of reception and combines them in its discourse. As the performer/spectator divide is collapsed, inter-sensory gesture is mediated successively through the body, until finally, the body's function is redefined as a site for production and cross-sensory engagement.

Gesture is always bound to its origin. When its means of production are abstracted or external, the perception of inter-sensory gesture includes synchretic correspondence, the principle of cohesion that associates disparate sensory domains through shared temporal engagement. In regards to a performer, it includes agency, and in regards to the self, embodiment. Associations between gesture and origin shape the affective discourse of multimedia composition towards the experience of an expanded body, redefined within its new sensory engagements. In each of *cm: av_c*, *Voyage*, and *TGarden,* the compositional dialog is focused on inter-sensory gesture and relational movement. The performer/spectator relation has shaped the affective dialog in each of these works to reflect on the origin of gesture. The engagement of the spectator is naturally focused towards a re-definition of the body in which the senses are shaped through the experience of intersections. New embodied sense relations are a natural consequence of work that strives to investigate the boundaries between media. As new connections are made between our senses, we perceive a different world, and must become new creatures within it.

CHAPTER 3: *FEAR OF FLIGHT*

DESCRIPTION

Fear of Flight takes place in a black box theatre[9], partitioned into an intimate 30 x 30 foot production space by four large screens and 8 speakers. The audience sits inside the screens, on the floor around a small clearing, and is surrounded by the performance area and four constructed walls of video (Appendix 2). The space is tightly packed, and audience members can hear and see each other's physical reactions to the performance. The production makes use of an assortment of aerial apparatus, including a silk and hoop that are positioned directly inside and above the seating area. The relatively large scale of the projected sound and image and the proximity of the performance, combine with the surround composition and choreography to fully immerse the audience's senses. Part of the work's production aesthetic involves placing the audience directly inside the performance. The immersion forces the audience to actively take control of their spectatorship in order to navigate the sheer amount of sensory experience they are provided with.

The production's narrative divides into five movements that outline an abstract narrative of spiritual desire and physical transformation, phrased in the metaphorical language of birds and space travel. A woman dreams of birds, and

[9] The full stage design is discussed in Chapter 6.

transforms herself into a bird-woman, to join them. Her own metamorphosis complete, she discovers that she is trapped in a cage and cannot fly freely as in her fantasies. After a difficult ordeal, in which she examines her psyche to find the nature of her own desire, the woman transforms her surrounding cage into a spaceship, and enters a new world from within it.

The first movement of Fear of Flight, *the things we long for* (9:04), introduces the work's thematic concerns of desire and the sacred power of the unseen. A woman's dream of birds, stirs a longing within her to take flight. She examines an empty birdcage and hears the movements of an invisible flock of birds surrounding her, commanding her attention.

In the second movement, *the borders of the spirit* (15:03), the woman is inspired by her dream, and her own world transforms to resemble its features. The new landscape that surrounds her is filled with magical creatures, half-women, half-bird. She tries to join the creatures, but they reject her. Eventually, the woman dons a clock of feathers and is allowed to join the flock. She flies towards a perch in the air. From her new vantage point, she sees that she is now trapped in the birdcage she once considered.

The woman confronts her situation in the third movement, *what is and isn't are* (12:20). A hybrid landscape, formed of both the natural world and her dreams, surrounds her. The woman recognizes her own form in a procession of creatures, and has a sudden insight into her situation. She places her hand on her double's heart, and white birds fly out of it, engulfing the cage and transforming it into a spaceship. Key moments from the woman's journey and the

fantasies that define her are depicted in the fourth movement, *gravitational pull* (7:50), through the windows of the spaceship. The ship takes off and burns itself into a charred husk that dissolves into dust.

After a terrifying journey, the fifth movement, *in outerspace we trust* (11:04), begins in darkness. The woman floats weightless, in a void that slowly fills with stars. Bubbles in which women lie dreaming surround her. As the woman discovers her place in the sky, she notices that she is not alone. Her movements give shape to both the matter and physical processes that surround her.

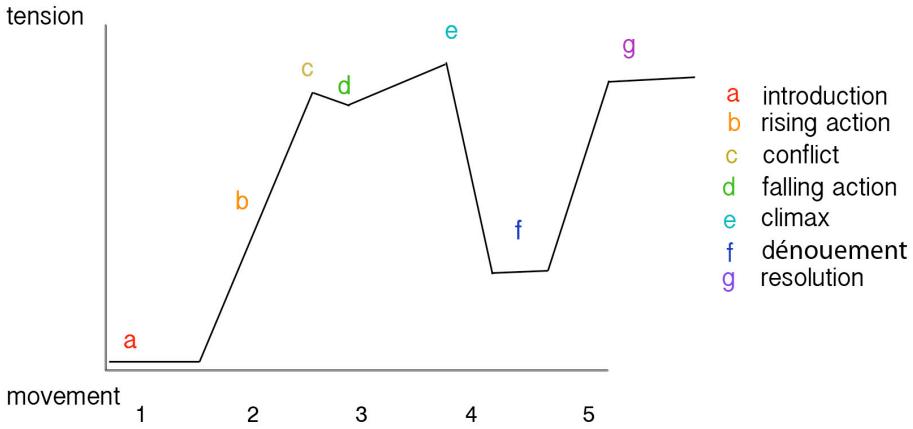
STRUCTURAL AND DRAMATIC ANALYSIS

Fear of Flight's movements are separated by short breaks of darkness. While each can be considered independently, together they build the dramatic arc of the narrative. The first movement serves as an introduction of the work's main thematic content. The second contains the rising action and ends with conflict. The climax falls at the end of the third movement, and is followed by a dénouement (Movement 4) and resolution (Movement 5). Figure 25a sketches the dramatic arc of the narrative over the five movements, showing the main events that shape the story and their approximate position in the work's structure.

The tension in the narrative is generated through the main character's desire to fly. Compare the graph of *Fear of Flight*'s dramatic arc with figure 25b, a

diagram that describes the height of the dancer's performance off the stage floor as well as the indicators of her 'flight'. The physical displacement of the dancer is

Fig 25a: The dramatic arc of the narrative.



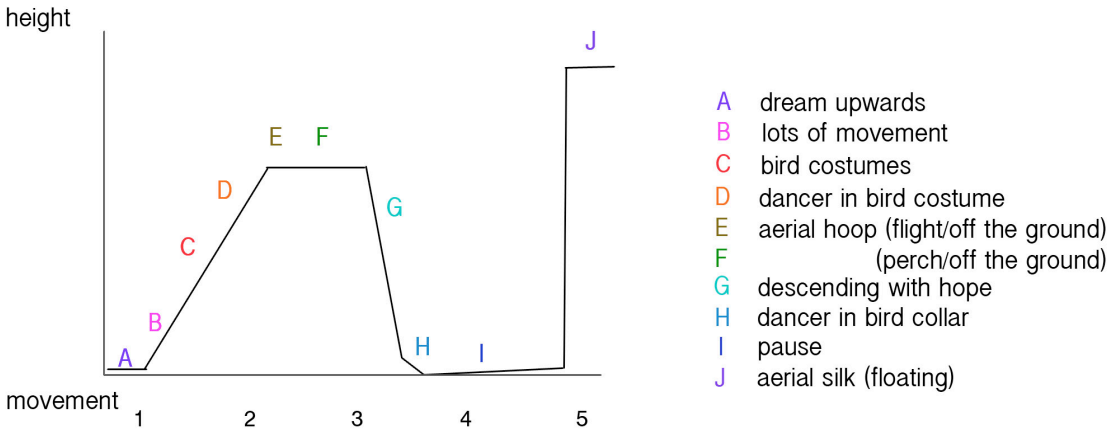
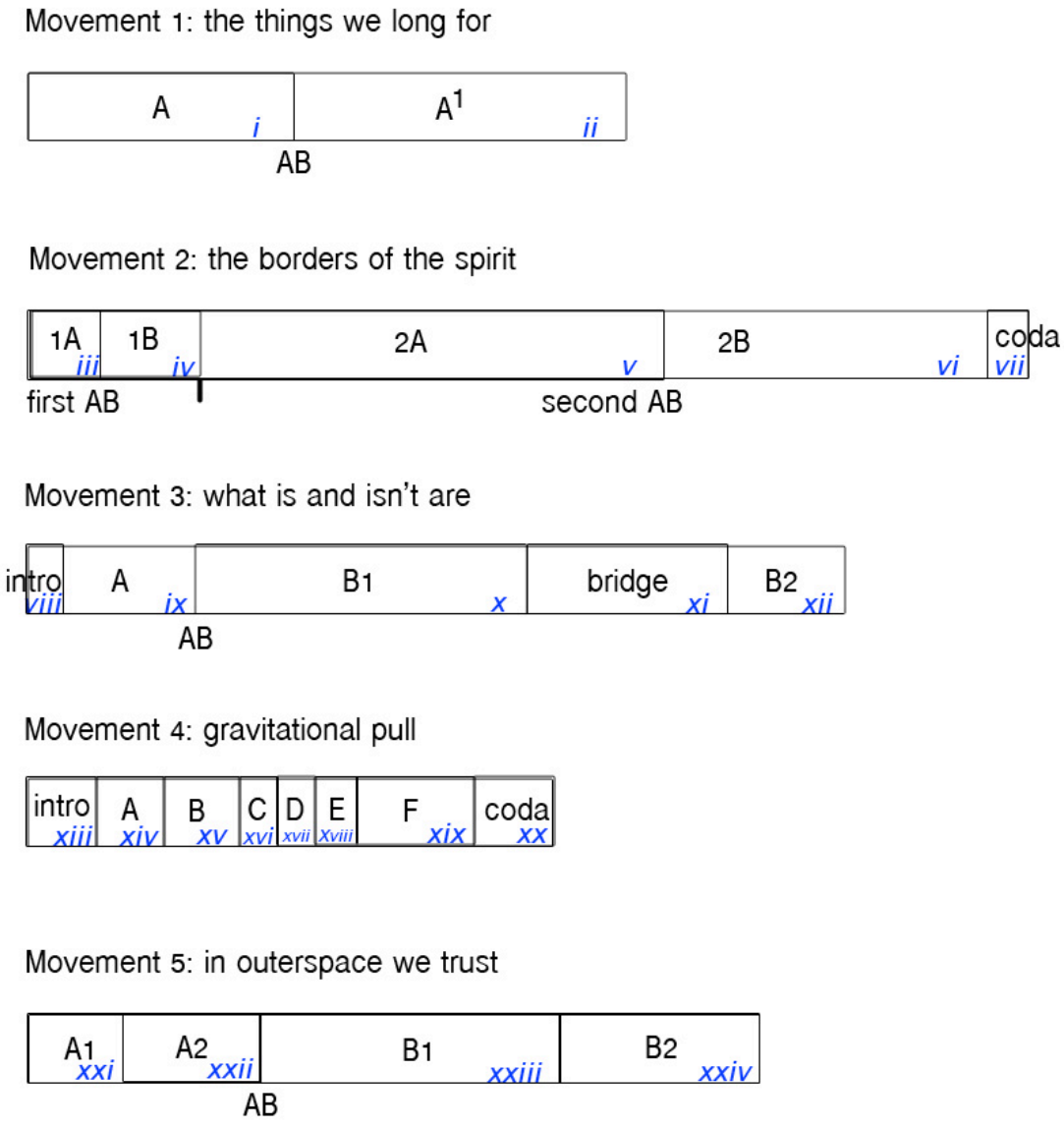


Fig 25b: The height of the dancer's performance on-stage.

indicative of the dramatic tension in the narrative. Her success with leaving the ground, as well as the dramatic indicators associated with her attempts, fuels the work's compositional development. The climax of the piece takes place on the ground at the end of Movement 3, when the dancer must readjust her method of flight. Any individual analysis of each of the five movements of *Fear of Flight*

must take into consideration their narrative relation to the dancer's vertical displacement on stage.

Fig 26: Structural analysis of the five movements, to scale



Fear of Flight is through-composed, and self-referential. The compositional discourse spans the production's music, projected video, and

stage performance, as well as their perceived interactions and intersections. Repetition under variation is used in *Fear of Flight*'s music, projected video, and between the video imagery and stage performance, to provide allusion, motific development and recapitulation within the composition. Related audio and visual source material is processed under different techniques and re-contextualized thematically.

The production's musical score adds structural salience to the dramatic narrative through its dynamic content. The five movements are primarily 'AB' forms, where each 'A' section acts as a short exposition to a more developed sequel (figure 26). Movement 2, the longest of the five movements divides into two such forms that together serve as one composite. In each case, the 'AB' form serves as an independent dramatic unit, driven by a specific narrative transformation that completes with the conclusion of the sequel.

MOVEMENT 1: THE THINGS WE LONG FOR (9:04)

(i) a dream of birds

(ii) she holds the cage

(i) a dream of birds

A woman, paused near a birdcage, fades in to view on the left projection screen along with the sound of bells, pitched low. She wears a nightgown and looks vulnerable. As she picks up the cage, she begins to dance, passing the cage around her body and using it to extend the reach of her arms. Her form is

interrupted by geometric patterns in which it dissolves and from which it reappears. Accompanying her are bell sounds that have been granulated, delayed, and made reverberant. The transformed sounds are organized into distinct phrases, followed by longer, evocative clusters into which they've been layered. The original phrases can still be discerned within the clusters, and are used to voice individual lines of movement. Quiet drones connect the clusters, separated by meditative moments of rest. The dancer's image, like the bell samples, is multiplied, manipulated, and overlaid. It too, is recognizable throughout its successive transformations. The sound and image develop at a similar pace (example 24).

A slow segment of video in which the woman steps around the birdcage, is replayed, along with its accompanying soundtrack, around the performance space. It passes first on the left screen, then the front, the right, the back, and finally again on the left where her movements continue past the segment's end. The boundaries of the stage area are established through the repetition over the successive screens. As the music begins to fade so does the woman's form.

(ii) she holds the cage

A new musical motif of repeating finger cymbals is introduced and the woman again appears, this time projected on the front screen, kneeling in front of the birdcage and gazing inside. Gone are the amorphous sonic constructions of (*i) a dream of birds*. They have been replaced with sharper-sounding samples,

derived from the same body of material, ordered into melodic rhythms. The tangible change in musical structure sharply differentiates (*ii)* from (*i).*

A female dancer, resembling the woman on the screen is revealed on stage to the left of the front screen. She too carries a birdcage and swings it around. As she begins to dance, her movements appear within the video projected on the front screen. The projected video incorporates both a live feed of the dancer on stage, and pre-composed footage of the dancer performing similar movements with the birdcage. On the screen behind the dancer, her image is manipulated as in the first section. It is as if the dancer has stepped out from the video projections into the physical narrative.

Fig 27a, 27b: Bringing the character to life through live performance (M1 3:08, M1 4:43).

The dancer's choreography and the music are both constructed to emphasize the weight of her limbs and the emotional complexities of her situation (example 24). She raises each of her legs and arms, as if to place them in the air, but is forced to return them to the ground when they will not stay. The upward momentum of her gestures is emphasized. Similarly, the music's melodic fragments continuously rise and fall in pitch and swell in dynamic. As the music ends, the dancer kneels in front of the birdcage, mirroring a scene previously

depicted in the video. She considers the birdcage as though it contains a secret she has yet to comprehend as the lights go dark.

Structure

Movement 1's 'AB' form closer resembles 'AA^{1}', with *(i) a dream of birds* comprised of only sound and video and (*ii) she holds the cage* introducing the dancer on stage (figure 26). The material for *(ii)* is closely derived from that of *a (i)*. It manifests the depicted imagery of the first scene into the physical world of the stage area by bringing the dancer's character to life through live performance (figures 27a, 27b). The dancer holds the birdcage and dreams of flying. The representation of her desire is transformed into her physical desiring body.

MOVEMENT 2: THE BORDERS OF THE SPIRIT (15:03)

(iii) from within the cage

(iv) shadows made real – awakening, transformation

(v) the bird-women – visitation, out of reach a, b, c, d, e, f, the flock, escape

(vi) in flight

(vii) invasive landing

(iii) from within the cage

A bright flash bursts from the cage in front of which the dancer kneels. Abstract forms and smoke fill the four screens that enclose the performance space. Within the projections, shadowy figures appear. They strike poses, move

and halt in rhythm, accompanied by a refrain (figure 28). Their performance is alternated with real shadows, created by performers who move between lights and the rear of the screens, accompanied by the same motif (figure 29). The dancer looks around, intrigued. Along with the refrain, can be heard modified bell sounds whose rhythmic phrases form a distinct cadence, separate from the refrain. The bell sounds suggest an alternate narrative line within the composition, and evoke the transformation of Movement 1 (example 1). They continue into the form's sequel, fading in volume.

Fig 28: The shadow figures (M2 00:49).

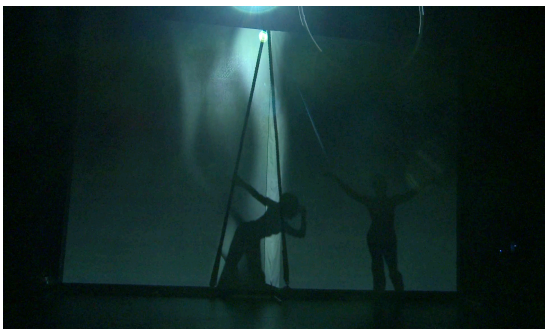
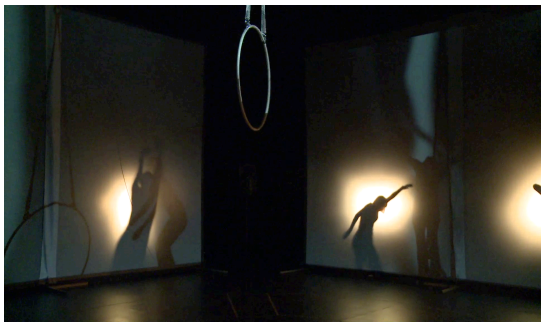


Fig 29: The shadows of the performers behind the screens (M2 00:43).



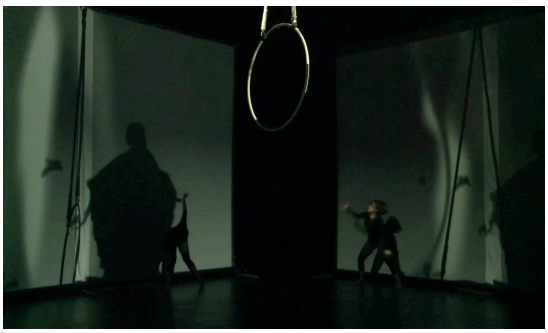


Fig 30: The shadow figures come alive (M2 01:16).

Fig 31: A bright flashing light fills the performance space (M2 01:44).

(iv) shadows made real – awakening, transformation

The music grows darker with the introduction of a new, thundering refrain of faster tempo: the sound of giant wings. A bright flashing light fills the

performance space, contributing to the section's salience within the composition (figure 31). Large black shadowy forms, half-woman, half-bird, flap their wings on each of the screens. The four shadow figures from behind the screens rush the stage area, dressed in black. They dance spasmodically. Their movements are free, fast, and angular (example 6). In a parallel development to the dancer's introduction in Movement 1, the depicted shadows have become physical bodies on stage (figures 28, 30). They remain to one side of the audience, while the dancer remains frightened on the other side. The projected bird creatures become more substantial with human features.

As the shadow figures run off, the refrain continues and intensifies. Dark silhouettes, half-bird, half-woman, replace the flapping bird forms within the projected video. The silhouettes disappear and reappear with the strobe's flash, whose brightness drowns out their image. The dancer walks slowly through the audience to the center of the stage area (example 6). She sits, and the flashing lights stop. She is left in darkness. A slow hissing sound fills the room.

(v) the bird-women – visitation, out of reach a, b, c, d, e, f, the flock, escape

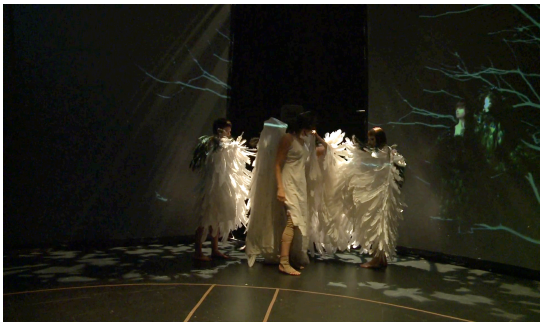
Two large trees appear projected on opposing sides of the performance space. The four shadow figures, clothed in elaborate peacock capes, sit inside the branches of each tree, transformed into bird-women. They whisper secrets to each other, grooming and preening. The hissing sound becomes a thick drone, broken by thunder like cracks of sound. In each of the four corners of the projection space, a live performer steps out of the darkness into the stage area,

wearing a long white capes of long feathers decorated with peacock feathers around the neck. The four of them move in tandem, stretching their wings and necks.

As *(v)* progresses, the drone intensifies and becomes louder. Staccato aural events emphasize specific actions on stage and create moments of dramatic tension. The bird-women flock together towards a single corner of the stage and settle on the ground. As the dancer approaches them, they scatter towards a different corner of the room and dance together mimicking flight formation (figure 32). The dancer again approaches. She reconciles her own movements to theirs: angular, energetic, and lightning fast, but the bird-women disperse once more. The pattern repeats several times. Finally, the bird-women settle down into a corner of the stage, flapping a single wing in synchronized invitation. The dancer approaches them and is rewarded with a matching feathered cape and collar (figure 33).

Fig 32: The birds dance in flight formation (M2 05:16).

Fig 33: The dancer is rewarded with a matching feathered costume (M2 06:51).



the flock serves as a short development section for *(v)*. The dancer joins the flock of bird-women and travel with them around the stage area. A simple rhythmic structure outlines the dancer's transformation and accompanies the

group performance. When introduced, the rhythm shapes the section's pacing. It slows down the performance on stage and emphasizes the group's cohesion (example 15). On the screens around the performance space, the bird-women appear in human form, dressed in nightclothes that match the dancer's from Movement 1 (figures 27a, 39b). They stretch out on blankets of peacock feathers at the edge of a forest filled with mist. The imagery casts an allegorical interpretation on the bird-women iconography, and re-visits the first movement's thematic content: each of these women dream of flight.

The dancer approaches the aerial hoop in *the bird-women*'s coda: *escape*. After the bird-women circle the performance space, a moon appears projected below the aerial hoop, suspended in the middle of the audience. The dancer stops her flock behavior, seemingly mesmerized by the moon (figure 34). The bird-women encourage the dancer towards the hoop. With a sudden lengthening sound, she lifts her body onto the hoop, leaving her cloak on the ground below.

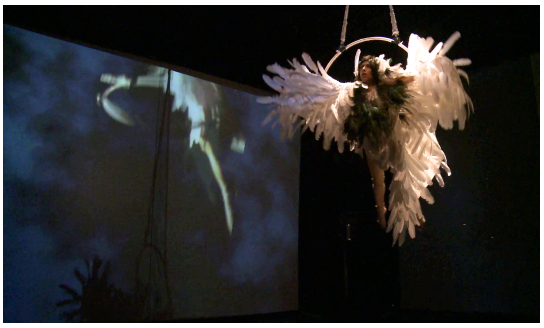
(v) contributes to the production's mounting sense of anticipation by introducing new indications of flight, both with the cast's feathered costumes and in their performance. The symbolic leap from birdcage to bird-women continues the production's narrative of desire and transformation. Throughout *(v),* the motion of the bird-women's costumes is emphasized in their choreography and echoes the rising and falling gestures of *(ii)* (examples 13, 24).

(vi) in flight

Once the dancer is fully raised on the hoop, the projected women and forest fade from view and are replaced with a blue sky and shifting black horizon. The dancer spins and performs on the hoop. The world around her dissolves into clouds. She regains her cloak of feathers and flaps her wings over the audience (figure 35).

Fig 34: The dancer is mesmerized by the moon (M2 09:21).

Fig 35: The dancer flaps her wings over the audience (M2 12:59).



Musically, *in flight* features a return of the bell-derived source material that references the character's desire. The bell samples are granulated past their individuating characteristics to form long textural beds of sound. The main temporal articulation within the composition comes from the static postures of the dancer, and from her quick transitions while performing her acrobatics (example 25). A real-time video feed of the dancer's performance appears composited, over the clouds that surround her in the video scenography. The feed is manipulated to smear and overlay multiple frames together but otherwise accurately depicts the dancer's performance moving as she does in her acrobatics. It is composited sideways, suggesting an alternate spatial perspective, as if the dancer was actually flying through the air without constant

frame of reference. The depicted image acts in counterpoint to the dancer's performance though its motion remains perpendicular to hers (example 25).

The rising action of the second movement, built through indications of flight, culminates with her ascension. The dancer has pierced the skin of her dreams and literally raised her body upward off the ground, to perform above the audience. The scene is prolonged, and appears 'out of time' or otherwise outside the normal dramatic construction of the piece. The video projections encourage the long format of the scene, dissolving into the blue smoke of sky and only re-establishing a context, the top of a forest, near the end of the dancer's performance.

(vii) invasive landing

A brief coda provides a moment of falling narrative. The dancer's flight ends at the edge of a forest. A wire frame appears depicted over all four screens of the projected video. The hoop has become a perch, and the dancer realizes she is sitting in the birdcage she once carried (figure 36). She grows panicked as the lights fade out around her.

Fig 36 The dancer is trapped in the cage she once carried (M2 14:30).

Fig 37: The dancer remains on the aerial hoop during Movement 3 (M3 00:11).

Structure

Movement 2 is comprised of two distinct 'AB' forms separated by a thin pause in the narrative for distinction (figure 26). Though the first form serves as exposition to the second, each voices a transformation within the narrative, and so, serves as an independent unit within the production's dramatic construction. The first 'AB' form: (*iii) from within the cage* and (*iv) shadows made real* can be further decomposed. *(iii)* is constructed from a short internal 'AB' structure that serves as a refrain[10], while *(iv)* is composed of one section repeated under variation[11] (figure 38a). The form describes the transformation of the shadows, released from the dancer's birdcage, into bird-women. The shadows are a narrative extension of the first movement, being the product of the dancer's longing, escaped from the cage.

The second dramatic unit of Movement 2 describes the dancer's transformation into a bird-woman in order to fly. The form's 'A' and 'B' sections, (*v) the bird-women* and (*vi) in-flight*, are not separated by a rigid structural break. Instead, they are discernible through musical theme and cast involvement. *(v)* has an internal, episodic structure[12] of the form 'ABCDEF' followed by a development section and coda, and preceded by a short introduction (figure

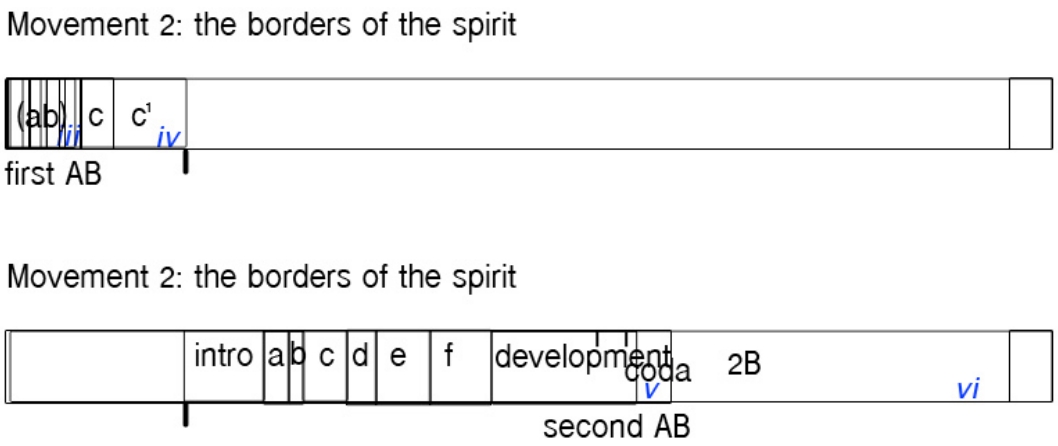
[10] Indicated as '(ab)' in figure 38a.

[11] Of the form 'AA^1', indicated as 'cc^1' in figure 38a.

[12] Indicated as 'abcdef' in figure 38b.

38b). The episodes are short, and formed from related choreography, while the development section includes new material.

Fig 38a, 38b: Detailed structural analysis of both 'AB' forms in Movement 2, to scale.



MOVEMENT 3: WHAT IS AND ISN'T ARE (12:20)

(viii) moon rise

(ix) outside her reach

(x) the star

(xi) the procession

(xii) from within

(viii) moon rise

Above the audience, the dancer remains still, sitting on her perch within the aerial hoop. A moon rises into view on the front screen accompanied by a faint drone (figure 37). It traces a path around the projection space, across the right and onto the back screen where it stops and grows larger.

(ix) outside her reach

The drone that accompanies the moon develops only after the moon has grown stationary. It swells and diminishes. The effect is one of restraint. A depiction of the dancer wearing a peacock feather cloak fades into view near the moon. She climbs a ladder and stretches out her arm, holding a birdcage, towards it but the moon disappears. The music that accompanies her is constructed from meditation bells and gongs arranged in simple directed phrases. It serves as a motific reference, and suggests the dancer's continued struggle, created through shared, bell-derived source material,

The scene dissolves in a shaky blur that borrows from the visual language of film, revealing the gaze from which it was shot. The imagery is an allegorical exposition of the character's still unfulfilled desire. Two waves of birds fly by and are replaced with a bird-woman, this time in a black feather cloak, shown in silhouette against the moon. The musical theme previously used to accompany the dancer's depiction now accompanies her. The shared treatment draws parallels between the two scenes and reveals the bird-woman as another aspect of the dancer (examples 12, 10). The bird-woman flaps her wings, raises her arms, and disappears.

(x) the star

The moon begins to fade on the rear screen as staccato flashes of light flicker and fall across the front screen. Revealed within the lights, is a depiction of

the dancer in her nightclothes, sitting with a jog and wooden bowl, the peacock-feathered cloak spread out beneath her. Her appearance references the bird-woman in human form, depicted at the edge of the forest in *(v) the flock* and *escape* (figures 39a, 39b). The image is repeatedly lowered across the front screen's projection surface accompanied with a low descending sound such as a distant motor. The projected depiction of the dancer, and the live dancer, are thrown into narrative opposition as they sit and face each other.

The music initially takes its character from the tense motif introduced in section *(ix),* and repeats the meditative bell refrain as the image stabilizes. Longer, granulated bell sounds, a faster version of the leitmotif associated with the dancer's flight in *(vi),* are introduced over the repeated theme. The use of repetition associates the scene with Movement 2, and connects the image to the ongoing dilemma of the dancer, who was unable to defeat the built-in limitations of her dream.

Fig 39a, 39b: The dancer resembles the women at the edge of the forest from Movement 3 (M3 3:18, M2 Front 9:23).

The projected dancer picks up the water jug and attempts to pour its contents into the wooden bowl in front of her. Her image is distorted and interrupted by patterned swirls that center on her movement. She attempts the

same action several times. Fractal patterns and fields of stars slowly expand from the area around her, outwards around the performance space, making use of all four screens to envelop the audience (figure 41). She becomes larger and finishes her gesture, invoking the image of the star card from the Tarot (figures 40a, 40b). The sky projected around the performance space begins to contract and the image of the dancer again grows smaller. A second version of the dancer fades into view in front of the first, larger and closer in perspective. The original image of the dancer lowers her head over the bowl of water in front of her and rests there. Both projected bodies become still.

Fig 40a: 'The Star' Tarot (Rider-Waite)

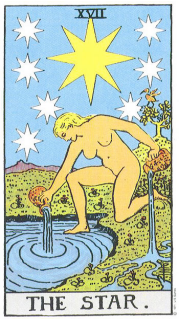
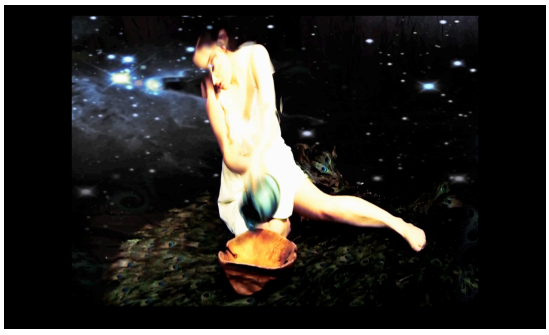


Fig 40b: Movement 3 invokes the image of the star card from the Tarot (M3 6:28).



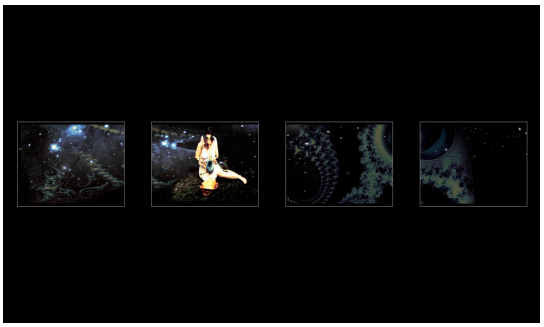


Fig 41: Stars and fractals expand to envelope the audience (M3 05:59).

Fig 42: The procession is filled with mythological characters (M3 07:38).

The prolonged bell leitmotif continues throughout *(x),* relating the imagery to the dancer's first flight. When the image finally contracts and settles back to

human scale, it is with the closing notes of the meditative bell refrain used in *(ix).* The musical accompaniment reveals *(x)* to be a thematic expansion of the allegorical narrative scenes found in *(ix)* that draws its psychological content through exploratory comparison with the flight scene of *(vi).*

(xi) the procession

A procession fades into view on the front screen. Another depiction of the dancer, wearing a full cloak made of peacock feathers as in *(ix),* leads the procession. Behind her are several of the bird-women[13], as well as other mythological characters: half-animal, half-human (figure 42). The procession weaves between the two original depictions of the dancer, the second of which appears architectural in scale by comparison to the marching figures. The procession walks in sync, in a choreographed march that incorporates bird-like gestures from *(v) out of reach.* They pass in front of the original projected version of the dancer, and she begins to move again, continuing to wash her face and arms in the bowl of water before her. As the marching figures pass between the front screen and the right, the dancer, who has been physically sitting above the audience in the aerial hoop for the duration of *(ix)* and *(x),* is obviously shaken. She strains her neck to follow their passage around the space. The procession continues across the right screen where the marching figures slowly turn themselves to settle into a frontward facing formation, gazing inwards towards the performance space.

[13] as on stage in *(v).*

A new repeated leitmotif accompanies the procession in *(xi)*, providing structural salience to the section within the composed form. The leitmotif is comprised of a rhythmic bell pattern featuring two slightly dissonant lines juxtaposed together. The procession's movements seem timed to the pattern's lower line (example 8). The characters cluster behind the dancer as the procession turns around to face the audience and wait in the middle of the screen.

(xii) from within

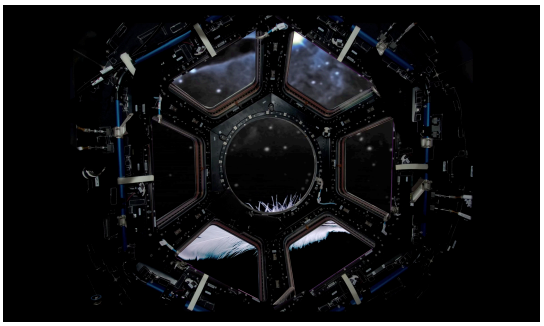
The leitmotif continues as the on stage dancer lowers her body down from the hoop. She lands in the small clearing surrounded by the audience, leaves, and approaches the right screen. There, her projected double spreads her cloak apart and scratches at her chest until a hole appears. As the dancer approaches her double, the hole widens to reveal a human heart. *(xii)* begins as the dancer touches her projected double' heart, with the introduction of new musical material (figure 43). Birds fly out from the exposed heart, in both directions, accompanied by a rising drone. The initial small flocks are replaced with larger and faster streams of birds that circle around the projection screens to fill them completely. The much louder drone that accompanies them, references the distant motor sounds of *(x).* It swells with the massive visual gesture.

The dancer leaves the performance space, and the procession distorts and floats upwards. After a prolonged moment, the birds flash and begin to converge into the form of a spaceship with four hexagonal windows for viewing

the sky. As the image of the spaceship solidifies, so does the star filled sky behind it. All other imagery fades from view until only the spaceship and stars are left.

Fig 43: The dancer touches her depiction's heart (M3 11:13).

Fig 44: A feather floats outside the window (M4 00:17).



Structure

Movement 3's AB form can be decomposed into 'AB1bB2' and ends with the climax of the production (figure 26). The 'B' section of the form takes shape over two parts, *(x) the star* and *(xii) from within*, connected through a long bridge section, *(xi) the procession*. It contains new musical and visual material that evolves out of *(ix),* and begins on the opposing projection screen. The dancer remains suspended above the audience for most of the third movement. She does not perform, but stays seated upon the aerial hoop, identified in Movement 2's coda[14] as a perch in a birdcage.

MOVEMENT 4: GRAVITATIONAL PULL (7:50)

[14] *(viii).*

(xiii) outside the window

(xiv) bird-woman

(xv) the flock

(xvi) they're watching

(xvii) in hiding

(xviii) dark shadows

(xix) to overcome

(xx) lift off

Structure

Like *(v) a-f,* Movement 4 is episodic, with new narrative material introduced at the end as a coda (figure 26). A single gesture is used as introduction[15]: a feather passing outside the spaceship's windows travels through two adjacent screens (figure 44). The six episodes[16] are each presented in the same way; a loud buildup of noise from the low to high frequencies accompanies a visual distortion of the spaceship and guides the audience to view a specific screen (example 5). The episode unfolds through the spaceship window, and later, a reverse transformation, complete with building high to low frequency sound, brings the spaceship to its zero state. The music unifies the episodes, being abstract variations on a theme whose structural divisions are created by the bookend gestures. It also submerges the narrative in a thick and noisy

[15] *(xiii)*

[16] marked as 'ABCEDF' in figure 26.

psychological discourse, forever building and dissolving, only to re-emerge in new variation without proper resolution. The dancer does not appear in Movement 4 except within the video projections where she is depicted in multiple conflicting situations.

The episodes introduce very little new narrative development to *Fear of Flight*, instead, they re-present scenes from the first three movements and position them into new dialog with each other. It is as if the main character is solving a riddle. She knows that the solution is already there, contained in her dreams, but must treat her experiences as a combination lock, and place them into new configurations beside each other to open the puzzle. The episodes are variations of earlier material or themes, presented in different context and with different emotional subtext created through detail, visual processing, and musical accompaniment.

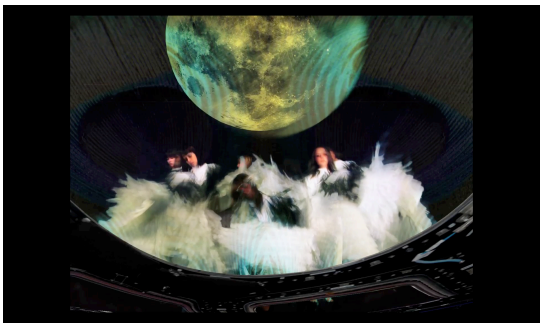
(xiv) bird-woman

A still image of the dancer, as seen from behind wearing a peacock-feathered cape, fades into the view of the front spaceship window. When the image is fully visible, the dancer's form becomes animate and the front window begins to enlarge. The spaceship distorts so that the front window fills the entire front screen as well as some of the left and right screens, and presumably the ceiling of the vessel. The left and right windows are pushed and stretched towards the rear, and the back window is compacted low against the floor of the ship. On the front screen, the dancer moves with the peacock feather cloak

(figure 45). The image is heavily processed so that the cloak's colors separate from the image like a skin, continuing to move at different speeds. The dancer closes her arms and turns around, unfolding one of them slowly. The front window begins to shrink, and the entire ship contracts back into its original form. The dancer fades from view, and another image fades into view through the ship's window on the back screen.

Fig 45: The dancer moves with the peacock feather cloak (M4 01:50).

Fig 46: The moon appears as the flocks ally (M4 02:33).



The peacock feather cloak is never used on stage, but instead appears in the video projections to idealize the image of the bird-woman or bird-women. The episode is not taken from an earlier scene, but references several of them. In color and content, it resembles the video used in *(i),* when the dancer, dressed in her nightgown, dances with the birdcage. Here the dancer has no birdcage but is instead dancing with a bird cloak. Her transformation is obvious. The episode also suggests the video material of Movement 3, in which the dancer wears the peacock cloak while reaching for the moon *(x),* sits on it *(xi),* and then wears it while leading a procession *(xii)* (examples 5, 12). The episode does not investigate these previous narrative sequences, but instead allows the image processing to arrest and deepen the portrayed moment of performance, as if to

extrude an extra layer of meaning and memory from the depicted dancer's lengthened gestures.

(xv) the flock

The second episode takes place through the rear window of the spaceship, after it expands to become dominant in the narrative. It depicts a group scene in which the bird-women, including the dancer, perform in flock formation under a large pregnant moon. The bird-women all wear the same white feather cloaks and peacock feather collars that they do on stage. Their choreography, although not identical, closely resembles extracts from *(v) out of reach* (figures 63a, 63b). The allusion is idealized. It appears at a much slower rate than the speed of the performance and depicts the dancer as an equal member of the flock without developing any necessity toward independent action. The moon, which beckoned the dancer to fly in *(vi)* and remained beyond her grasp in *(x),* here, the moon appears as the flock's ally, offering them protection from above (figure 46). The scene is lightly superimposed with the grain of a peacock feather, and the flock's gestures are blurred and demonstrate obvious temporal edits. The light image processing gives the scene an air of narrative distance, and an alternate sense of temporality such as might have a memory.

(xvi) they're watching

During the spaceship's transformation, a tree fades into view on the left screen. The tree is colored with stars and an evening sky. On its branches the

bird-women perch and preen. The scene is taken directly from the video projections of *(v) visitation* and *out of reach.* Unlike its previous appearance, the tree's coloring reflects that of the forest in *(ix),* above which the dancer perched. The image collapses the two trees from Movement 2, repositioning the preening bird-women into a new spatial and temporal location within the narrative (figures 62b, 47a, 47b).

Fig 47a: The forest from Movement 2 (M2 14:09).

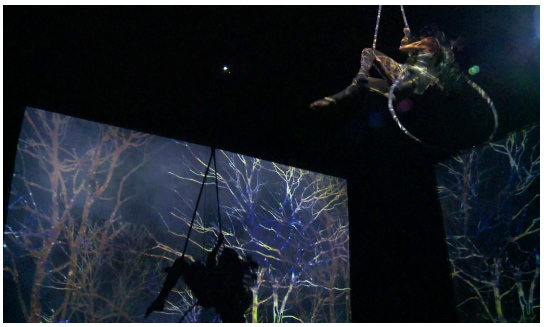


Fig 47b: The image combines the bird-women's tree with the forest (M4 3:30).

Fig 48a: The birds that fill the screens in Movement 2 (*M3 11:39).*

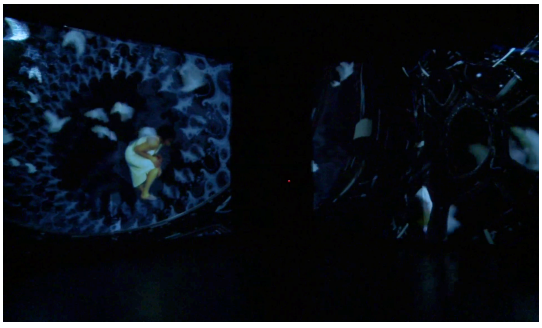


Fig 48b: The image is a composite of references (M4 3:58).

(xvii) in hiding

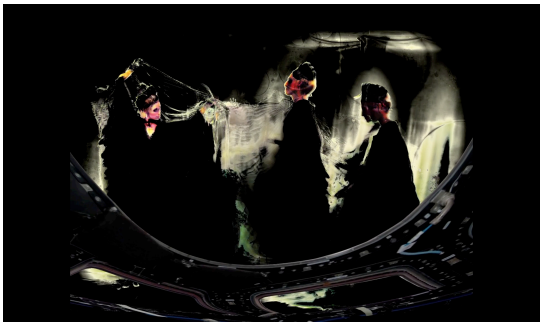
In the fourth episode, the dancer is in her nightgown, crouched amidst an abstract purple pattern. The pattern resembles the iris of a giant eye in which the dancer is reflected. She looks terrified and seems to be hiding from something

that is chasing her. She lowers her head as a flock of birds flies past her, continuing across the back window.

Although the narrative content of the episode is new, the scene seems less a dramatic development than a composite image filled with references to previous material. The dancer is extracted from *(i),* without her birdcage or visual processing. The birds reference the end of *(xii)* (figures 27a, 48a, 48b). They appear without a beginning or end to their journey, but remain agents of transformation. Here, the dancer tries to avoid them rather than be changed by their flight. The scene suggests emotional dissonance after the climax of Movement 3.

Fig 49a: *The Triumph of Death*, or *The 3 Fates*. Flemish tapestry (probably Brussels, ca. 1510-1520). Victoria and Albert Museum, London. {{PD-1996}}.

Fig 49b: Alone, the three bird-women resemble the three fates (M4 4:48).



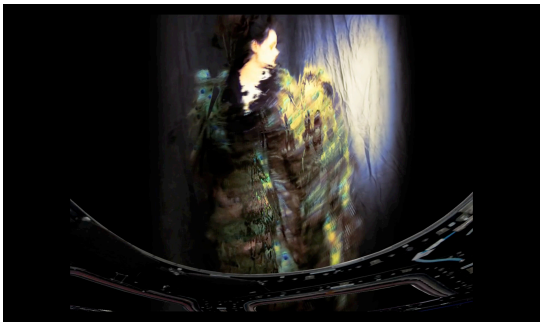


Fig 50a: The dancer first performs with the peacock feather cloak (M4 1:48).

Fig 50b: The dancer uses her previous image as a kind of prosthetic (M4 5:41).

(xviii) dark shadows

The fifth episode shows a scene of three black bird-women superimposed together, manipulating feathers and thread. The bird-women appear to be made of shadows, with only occasional details revealing their coloring. An eerie yellow light silhouettes them. The material for this episode is taken from *(iv) transformation*, when the shadows first became bird-women. In *(iv)*, the figures were in a context of many others projected around the performance space. Their actions were overshadowed by the brightly flashing strobe. Here, the figures are alone. Their number, form, and the string they hold, now suggest the three personified fates, who spin, pull, and cut thread to symbolize the course of human life. Their familiarity demonstrates that they have always been present within the narrative. The scene resituates the bird-women into mythic proportion by comparing their origin from the shadows to archetypal mythology (figures 49a, 49b).

Fix 51: The spaceship's walls flash blue in unison (M4 06:52).

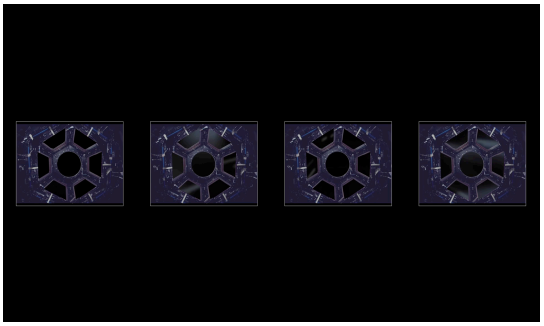
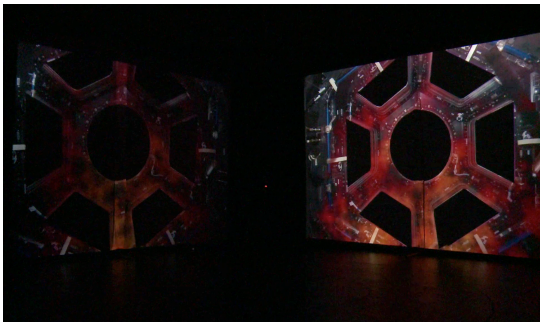


Fig 52: The spaceship is consumed by flames (M4 07:14).



(xix) to overcome

In the last of Movement 4's episodes, the dancer performs in her nightgown. Her gestures naively suggest flight. Behind her are two other versions

of herself, positioned like wings above and on either side of her arms. They move with her, extending her reach when she flaps her wings, distorting with her motion. Each of her attendants manipulates their own peacock-feathered cloak that they hold in their arms and occasionally wraps around their torso. The scene depicts the dancer using her previous image as a kind of prosthetic to further the development of her dreams (figures 27a, 50a, 50b). It references the narrative's introduction in Movement 1[17], the only time the dancer has performed alone in nightclothes. It also references *(xiv),* the first episode to appear in Movement 4, in which the dancer performs with the peacock-feathered cloak. In suggesting the first episode with the sixth, the structure of Movement 4 becomes circular. Any recapitulation is interrupted with the coda.

(xx) lift off

After the scene fades from view and the ship distorts back into its original position, only distant stars can be seen through the windows. The spaceship's walls flash blue in unison and the moving scene outside the windows demonstrates that the journey has begun (figure 51). After a short voyage, a wave of fire engulfs the ship from the floor to the ceiling (figure 52). A loud bass sound with a long high frequency tail accompanies the flames that consume the spaceship. The fire consumes all four walls until only cinders remain. These are slowly overtaken by smoke and fade away revealing only blackness. Movement 4's climax prepares for the resolution of *Fear of Flight*'s central narrative by

[17] both *(i)* and *(ii).*

dissolving the temporary structure of transformation. The spaceship whose windows opened onto the dancer's psyche, served as a device for flight without limitations.

MOVEMENT 5: IN OUTERSPACE WE TRUST (11:04)

(xxi) awaken

(xxii) miniature worlds

(xxiii) the beyond

(xiv) with or without wings

Structure

Movement 5 serves as the resolution for *Fear of Flight*'s narrative. It too takes the form 'AB', expanding to A = 'A1A2'[18], and B = 'B1B2'[19], in which 'A' serves as exposition to 'B' and the dancer's transformation into a constellation completes (figure 26). The two sections are separated by distinct musical structure, and feature similar themes and performance. They each have two parts, divided through the introduction of the supporting cast, changes to the soundtrack, and video imagery

xxi) awaken

[18] or *(xxi)(xxii)*.

[19] or *(xxiii)(xxiv).*

Soft stars fade into being on the dancer's body. They illuminate her as she hangs over the audience, suspended from a black aerial silk. In the darkness, she looks like she is floating. A thick drone fades in, informing the scene with its timeless quality. The moon appears depicted on the front screen, revolving. The dancer is revealed on the screen through her shadow, reaching towards the moon. Another depicted shadow begins to eclipse the moon, and she beckons it closer until it overtakes the moon completely (example 20). Her stark image recalls the shadows in section *(iii)*: birthed from an early state of her desire (figure 29). The dancer wraps the silk around her body like a hammock and suspends herself halfway in the air, over the audience. She allows her body to stop swinging, but continues to move her arms expressively in the air.

xxii) miniature worlds

Depicted stars fade into view on all four of the projection screens. A high frequency component is added to the drone the drone that accompanies them, as are convolved bell sounds. The dancer suspends her body in a seated wrap. The wrap partially obscures her body, diminishing her visual contribution to the composition and allowing the audience to focus on the other elements in the scene (figure 53). Randomly distributed bubbles begin to appear, floating weightlessly within the field of stars. Inside the bubbles are the bird-women as women, dressed only in their silk nightclothes, tossing and turning on the edge of sleep. When the dancer's shadow interrupts the projected video, her gestures

are shown in stark relief. The speed and shape of her gestures adds counterpoint to the motion of the bubbles (example 26).

(xxii) introduces the bird-women into Movement 5's narrative. The section reinforces the ongoing comparison between the dancer and the bird-women as products of similar transformation. As in the projected video of *(vi),* the bird-women have taken the form of dreaming women, dressed in nightclothes. Their sleeping forms evoke their previous depiction at the edge of the forest in *(v) the flock* and *escape*, an image that has already been alluded to by the dancer in *(xi)* (figures 39b, 54). While the depicted women float by in bubbles, the bird-women enter the stage area. On stage, two processions begin in which bird-women, dressed in nightclothes under white-feathered cloaks, use a ladder to suspend themselves from the ropes dangling in front of each screen.

xxiii) the beyond

Around the performance space, depicted stars swim by in waves. They ripple like fabric. The crescent form of the moon appears again upon the front screen. The umbra slips past, and the moon blurs and repeats, multiplying into a progression of repeated images, creating a long visual gesture that unfolds across three screens in synchrony with the opening sounds of section *(xxiii)* music. The series recedes into the distance across the right and back screens and then begins to rotate inwards before being obscured. The gesture reframes the scale of the performance space, lost in the darkness of *(xxi)* and *(xxii).* It

introduces a new dynamism to the composition, moving with the music (example 27).

Along with the sweeping visual gesture comes a dramatic change in the dynamism of the dancer's performance, and the section's opening ostinato (example 27). The use of the ostinato, a repeated two bar phrase, clearly distinguishes the beginning of *(xxiii).* It continues until the end of the production. The dancer leaves her wrap and begins to position her body through an active sequence of choreographed hangs and expressive movements, timed to match the rhythmic pulse of the ostinato and its soaring, melodic, accompaniment. Like *(ii),* the music includes bell-derived material, sculpted to rise and fall over a repeated refrain. Here, it is the dynamics of the melody's component voices that generate the necessary motion rather than their pitch. The rising and falling motion is much slower than in *(ii),* and much less aggressive. It evokes breath, and by comparison, a narrative relaxation of the dancer's struggle (examples 17, 22). Also quite different from *(ii),* is the bell-derived material that forms the main melodic voice over the ostinato. The voice is continuous and shaped, voicing no artifacts from being struck. It is also constructed over larger temporal structures. The sound has been made reverberant and seems to filter in from a distant location. It closer resembles that which accompanied the dancer's first flight in *(vi)* rather than material from the first movement (examples 28, 23).

A live feed of the dancer is composited within the depiction of the sky projected on the front screen. The image moves in rhythm as she does. The multiplication of her motion serves to double her motion's voice within the

composition, and better articulate its strongest gestures (example 22). The image processing dissolves her body into thick blobs that recede into constellations of smaller forms, giving the illusion of a body made of stars and galaxies.

Fig 29: Her body's visual contribution is diminished (M5 3:06).

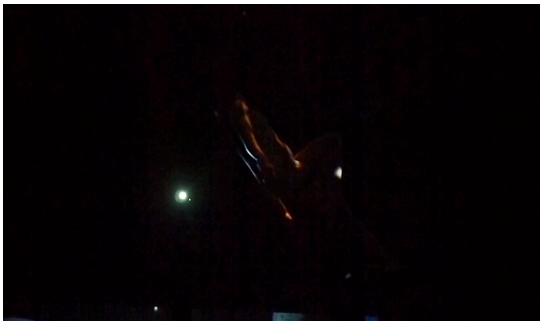
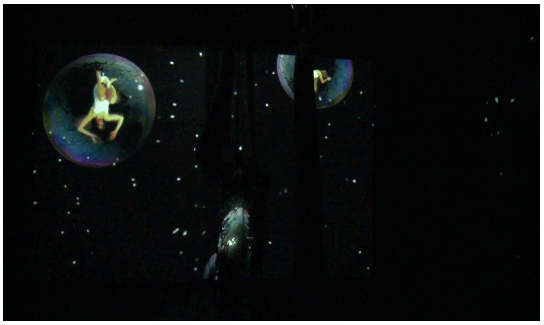


Fig 30: The women in the bubbles evoke the scene at the edge of the forest (M5 2:56).



A comet travels from the back of the projection area to the front. As the comet travels, both the ostinato and melodic accompaniment pause, leaving only a pulse and bare musical form to accompany, and draw attention to, the comet's progress. The sudden lack of aural stimulation creates a short moment of tension within the composition (example 29). The comet divides into four and the tension is resolved when the main theme of the melody is re-introduced and the ostinato continues. The four bird-women have waited in darkness, suspended, since their introduction in *(xxii).* As each comet begins its separate path towards one of the bird-woman, another, second pause in the musical form is used to produce tension. The effect is dissolved as *(xiv)* begins.

xiv) with or without wings

Like *(xxii)* and *(xxi), (xxiv)* introduces the bird-women into the dancer's previous narrative of *(xxiii).* Within the video scenography, the comets turn into

images of the bird-women dancing, wearing cloaks of white feathers. Their projection illuminates the suspended performers, against whose bodies the images break. The bird-women are contrasted with their own idealized forms, a direct allusion to their introduction in Movement 2 (figure 32). While their physical bodies on stage are suspended from the ceiling, their depictions dance in the sky, blurred and slowed to the pace of a dream.

The bird-women turn over onto their sides, and hang in unison. The shadow of the dancer, suspended above, is visible over each of them. She flaps her arms and waits for them to awake. The four suspended bird-women are spun around by stagehands in groups of two while the dancer continues her aerial performance. She again inverts herself and the surrounding bird-women all fall to their sides in tandem. She continues her performance while they flap gracefully, using muted movements.

Fig 55a: The dancer's live feed dissolves into stars (M5 6:18)

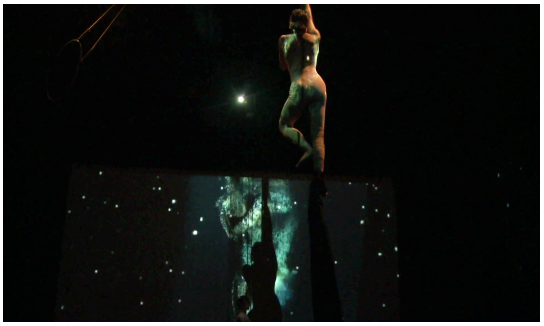


Fig 55b: The bird-woman's depictions fill with stars (M5 9:50)

The suspended bird-women provide a kind of chorus to the dancer, surrounding her body from a lower height, outside of the audience's seating area. They perform in tandem except when they are individually spun. As the dancer's depiction disappears from the projected sky, those of the bird-women fill with

stars, making the narrative comparison between the dancer and the bird-women complete. (figures 55a, 55b). The dancer's shadow interrupts each of them, contrasting their movements with hers.

On the four screens, depictions of white feathers, all different sizes, begin to float into view. They accumulate on the screens, amongst the stars. The white light of their projected forms creates light in the theatre. Finally, in a combined final gesture, the feathers fill all four walls, turning everything white. The dancer takes a final slow motion plunge down the silk, emerging near the audience with the last ostinato. Her shadow accompanies her on every screen, immersed in the thick white void. The theatre slowly fades to black. (example 7).

CHAPTER 4: DEVELOPMENT AND COMPOSITION OF *FEAR OF FLIGHT*

PERFORMANCE

Video Improvisation

The working methodology for *Fear of Flight* incorporated multiple video shoots to generate material for the production. The first shoot was directed by Freida Abtan and took place in Brad Shur's Providence, RI studio in April 2010 over two days. It involved two models, Bonnie E. Johnson and Audrey Ellis Fox, who each wore a different cloak of feathers and played with assorted props. For the first shoot, Fox wore a long slip and the peacock feather cloak, performing with a birdcage, a wooden bowl, and a green pitcher. She was asked to dance with the birdcage, to mime bird movements in the cloak, and to pursue several other movement exercises including a sequence with a ladder and a picnic scene with the bowl and pitcher (figure 56a). Johnson's shoot the next day mirrored Fox's, with the addition of a black rope, peacock feathers, and tarot cards for props (figure 56b). The footage from both shoots was compiled and edited for image manipulation afterward. The footage in the peacock feather cloak was the most successful, as the cloak gave wonderful results under coloration.

Over the next year, a 32-minute audiovisual work, *flock of birds,* was produced from the video shoot, along with several other short pieces of test

footage. The gestures and behaviors that originated in the shoot were refined and manipulated. Their motion was interrupted and rearranged into a different temporal scale. The results became icons for *Fear of Flight*'s future development. *flock of birds* is a single screen composite of the base visual material developed for *Fear of Flight*. Much of its composition is kept intact in the final production.

Fig 56a: The first video shoot in Providence featured Audrey Ellis Fox.

Fig 56b: The second video shoot in Providence featured Bonnie E. Johnson.

Fig 57: In the Montreal group video shoot, the cast improvised together.

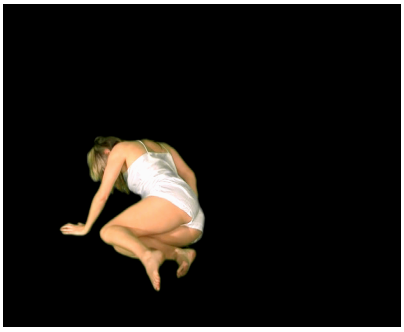


Fig 58: Each member of the cast performed specific independent actions.

A series of five video shoots took place in a green screen studio in Montreal, Canada between October and December 2011. The shoots focused on generating material with an extended vocabulary of movement from *flock of birds*. The cast was directed by both Freida Abtan and Geneviève Bolla and asked to perform with the different feather capes, including several shots that focused on bird behavior. In addition, Bolla devised a small choreography for

each of the supporting cast members to perform, and several group scenarios were improvised that featured dance and flock behavior (figure 57). Along with free improvisation and directed movement, the cast was required to repeat sequences from *flock of birds*, behaviors that originated between the first video shoot and its digital treatment. They were also asked to each perform specific actions for the video production, such as rolling against a wall in nightclothes (figure 58).

Development and Mimesis

flock of birds featured different performers than those that appeared in the stage production. Most of the video evolved from footage of Fox who had long dark hair loosely tied back from her face. Fox was not available to star in the Montreal production, nor was she trained in aerial performance. Her movements were improvised under loose direction, and developed from her own body's repertoire of gesture. Caroline Rochefort, selected to be the lead in the April 2012 production of *Fear of Flight*, wore a dark wig in the video shoots and on stage to resemble Fox. She studied Fox's movements, transformed through image processing, to construct her performance. Movement 1 features footage of Audrey and Caroline composited together (figure 59). Although careful scrutiny reveals them to be separate people, their visual and narrative similarity is sufficient to fuse them into a single character within the production. Rochefort's stage choreography mimics Fox's performance within the video, dancing and bent over the birdcage (figure 60).

Fig 59: Audrey and Caroline are composited together (M1 7:17).

Fig 60: Caroline mimics Audrey's depiction in the video (M1 4:22).

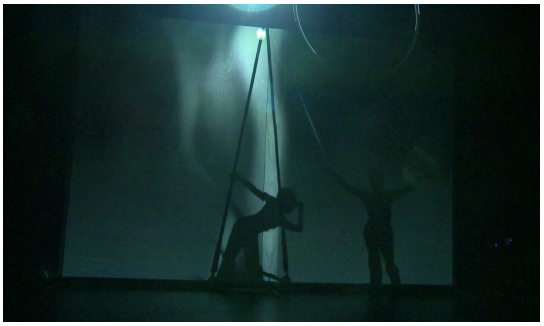


Fig 61a: The shadow dancers are depicted in the video. (M2 0:51).

Fig 61b: The shadow dancers are revealed behind the screens (M2 0:28).

The Montreal video shoots were held before *Fear of Flight*'s dance rehearsals, to develop the production's video materials and stage performance in parallel. The vocabulary of movement improvised during the video shoots seeded the choreography, where it was organized according to the production's narrative. Geneviève Bolla created *Fear of Flight*'s stage choreography over an intensive two-month production schedule. Three group routines were scheduled: the shadow dancer choreography for *(iii),* the bird-women choreography for *(v)* and the suspension harness routine for *(xxiv).* After the dance rehearsals were moved to the theater space and could be synchronized with the video, the shadow dancer choreography was drastically shortened in favor of a short section of free improvisation and extended bird-women choreography.

In the shadow figure choreography of *(iii)*, mimesis serves as a tool for improvisation between video mediation and performance. The video features excerpts of the video shoot improvisations that have been made black, edited, and played at variable speed. The cast members behind the screens match the postures in the video mimicking the edited versions of their previous improvisations (figures 61a, 61b). Later, when the strobe begins and the dancers take to the stage area, their improvisations are inspired by the hybrid result.

By contrast, parts of the bird-woman choreography appear in several places over the narrative, taken from inter-related phases of its development. The result creates a self-referential structure that integrates the production's stage and video materials. The choreography takes gestures that suggest birds' behaviors and bodies, and incorporates them into longer dance forms. It draws on angular and sudden movement to express their speed and strength as well as their essential alien qualities. It was developed by injecting tableaux of bird-like behaviors into the narrative. The dancer's approach serves as a thematic device to connect the tableaux and move the narrative around the stage area. The bird-women are not meant to be human and they are not meant to be kind or nice. Their main attributes are the marks of their species rather than any relationship they may have with the dancer.

The choreography incorporates bird behaviors individually performed in the studio during the video shoots. The footage evolved into accompanying video, so that the cast's behavior on-stage matches theirs projected above them (figures 62a, 62b). Such similarities occur throughout the production. Repetition

puts scenes with shared imagery in dialog with one another. The flock tableaux used in the bird-women encounter are developed in part from a group video shoot of the cast dancing together (figure 63a). The footage from the shoot appears processed and edited in (xv) where it is framed through the window of a spaceship (figure 63b). When projected, the scene evokes the stage performance of *(v) out of reach* and *the flock* even though its depiction differs enormously. The video and the stage choreography belong to the same moment as they are descended from the same original material. The details re-contextualize the scene, as does its new location within the piece's narrative.

Fig 62a: The bird behaviors portrayed on stage reflect those in the video (M2 3:45).

Fig 62b: The bird behaviors in the video are similar (M2 Back 2:42)

Fig 63a: The flock behavior is derived from the video shoot (M2 4:31).

Fig 63b: The video resembles the stage performance (M4 Back 2:39).

The suspension harness choreography of *(xxiv)* features few movements, and is designed for dancers with no aerial experience. It is auxiliary performance, to be experienced in the context of Rochefort's movements on the silk. The bird-

women reflect some of her gestures. They flap their arms suggestively, and serve as three-dimensional projection surfaces, their forms defined by the video projected on them. After the stage-area and video projections were finalized, the choreography was developed over three rehearsals as an exercise in call and response. Rochefort signals the cast by assuming poses within her performance and they respond by moving to their next position.

Fig 64a: The dancer hangs in an aerial wrap surrounded by the cast (M5 8:20).

Fig 64b: The cast mimics the dancer from their harnesses (M5 8:25).

The suspension harness choreography uses mimesis as a tool for narrative development. In *(vi),* the dancer joins the bird-women in their dance, following their movements until she has mastered them. In *(xxiv),* it is the dancer whose gestures are copied by the bird-women, demonstrating that she has surpassed them. Figure 64a shows the dancer in Movement 5, upside down in an aerial wrap. She poses with both of her legs raised and with one of her knees bent. As she leaves the pose, the bird-women suspended around her flip downwards and adopt it (figure 64b). The bird-women follow the dancer's form as she followed theirs previously.

Surround Choreography

Fear of Flight's choreography makes use of the stage area between the audience and projection screens. Over the course of the production it divides the stage area in several ways. It surrounds the audience with multiple versions of the same performance, moves the locus of performance around the audience, and divides the performance into opposing sides of the stage area. These different uses of the stage help develop the production's surround composition and representation of space[20].

The three main configurations of the stage space can be compared in Movement 2. During *(iii)* the dancer stays on one side of the audience, while the shadow performance takes place on the other side (example 1). Although the dancer's performance is minimal, she is the only obvious focus for the audience's attention when the movement begins. The audience reacts to her presence on stage before turning their attention to the choreography developed elsewhere. In *(iv) awakening,* the stage area is again obviously split by the shadow-women on one side and the dancer on the other. In *(v) visitation* the bird-women first enter the stage area they appear at the edges of the screens, one in each corner (example 2). They perform the same choreography so the audience can look at any of them to follow their movements. In *(v) a-f*, they begin to move from corner to corner together (example 3). Their choreography makes use of the stage space by traveling from point-to-point within it. To follow the performance, the audience needs to focus only on the area they are active in at any given time.

[20] For a complete stage diagram, please see Appendix 3. A figure that shows only the stage area suitable for performance, delimited by screens and the audience seated area, is included in Chapter 6 as figure 2a.

Aerial Choreography

Caroline Rochefort created Fear of Flight's hoop and silk choreography. Both of Rochefort's routines stem from her previous experience as an acrobat, performing in the context of circus. The routines she performs in *Fear of Flight* were created specifically for the production, and are based on the narratives in which they appear. Both choreographies privilege expressive movement over acrobatic tricks, and use elements in the video projections and audio as anchors. They are rehearsed routines whose forms differ over each performance based on the evening's circumstances, such as stage timing, spin, and the performer's physical strength.

The hoop choreography focuses on postures that relate to flight and to the narrative details of the character's situation. It features several hangs and balanced postures in which Rochefort's arms are freed for expressive movement to suggest her character's flight (figure 65). It was created by connecting dramatic elements, and acrobatic transitions, sequentially. While hoop performance is normally paced to dizzy the audience with lightening fast technique, flips, and spins, Rochefort's choreography focuses instead on building a slow voyage. It unfolds like a dream within the piece's narrative and peaks as her character discovers she is in a cage in *(ix)*. Her choreography travels from the bottom to the top of the hoop, initially featuring hangs that position Rochefort close to the audience (figure 66a) and culminating with her balanced above the

hoop's top (figure 66b). With her displacement, her shadows move between the bottom and middle of the surrounding screens.

Fig 65, 68: Rochefort's arms are freed for expressive movement during her aerial hoop and silk performances (M2 12:23, M5 8:20).

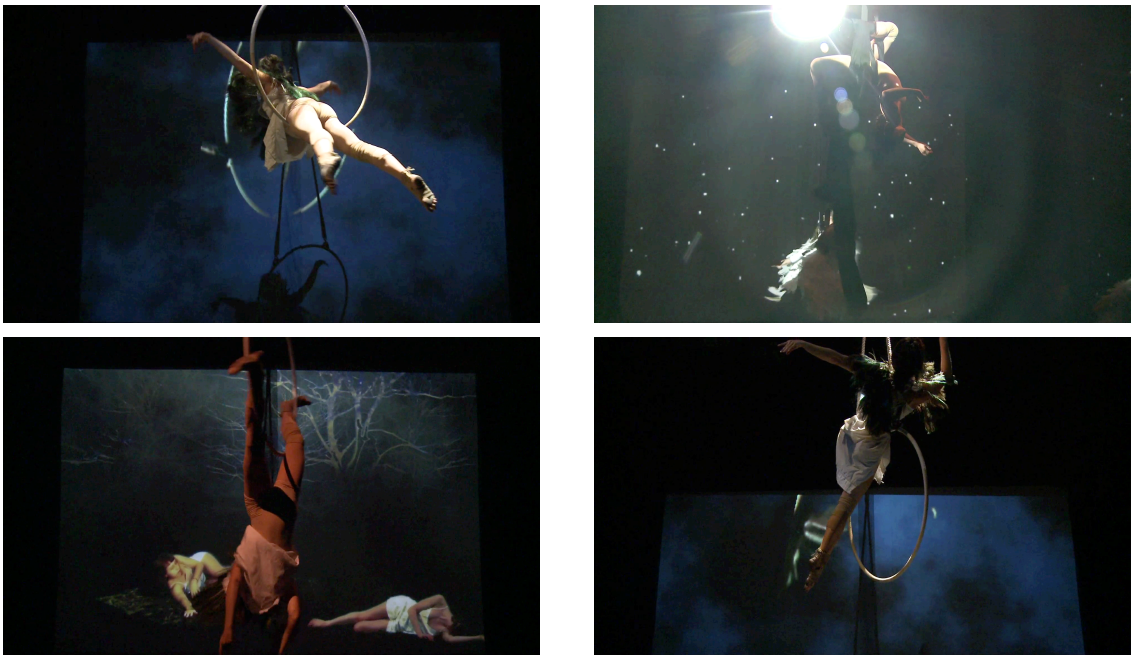


Fig 66a, 66b: Rochefort's performance travels from below to the very top of the hoop (M2 9:51, M2 13:35).

Silk performance is incredibly taxing on the aerialist, and every moment suspended can have a profound effect on the amount of energy and muscle strength left available to the performer afterward. Rochefort's character is in the air during the entire fifth movement of *Fear of Flight*, a period over eleven minutes long. Her choreography is designed to help her stay suspended until the movement finishes. It incorporates at least two periods of dead time, when the main locus of composition is not on her performance (figure 67) and she can remain in a low-difficulty wrap. It also contains several moments of expressive

movement where her performance is not centered on acrobatics but instead on arm gestures and shadow play while her body remains in a wrap (figure 68).

Fig 67: Rochefort spends time in a low-difficulty wrap (M5 2:15).

Fig 69: Rochefort's choreography is inspired by astronauts in space (M5 6:58).

The silk choreography is inspired by the weightless walk of astronauts, whose motions slow down outside the force of the earth's gravity (figure 69). Like the hoop choreography, the silk choreography connects dramatic elements sequentially through acrobatic transitions. A strong emphasis on narrative pacing ensures synchronization with the movement's video elements as well as with the other performances on stage. Of the more difficult silk acrobatics, only a single drop is featured. It appears at the end of the choreography, where it is performed at a slow pace before Rochefort descends from the silk.

In addition to her hoop and silk choreography, Rochefort collaborated with Geneviève Bolla to design the suspension harness segment that the rest of the cast performs in *(xxiv).* The suspension harness suspends acrobats from a single point beneath their mid-section. The performer can fall backwards, or sit with the line between their legs. Climbs, rolls, and other acrobatics are also possible, but are not used in *Fear of Flight.* Instead, the harnesses are used only for seated and drop suspension.

SURROUND PROJECTION STRATEGIES AND CONSIDERATIONS

Fear of Flight demonstrates several approaches to surround composition. The strategies that are used explore the projection's extended area according to spatial and representational possibility. They also consider the audience's perceptual experience, located from within the projection area and centered on specific aspects of the composition at any given time. Six main principles guide the projection area's division. Briefly, these principles are: inclusiveness, cohesion, spatial representation, liminality, orientation, and saturation. With its use of the surround projection area, *Fear of Flight* attempts to voice these principles over a wide dynamic range.

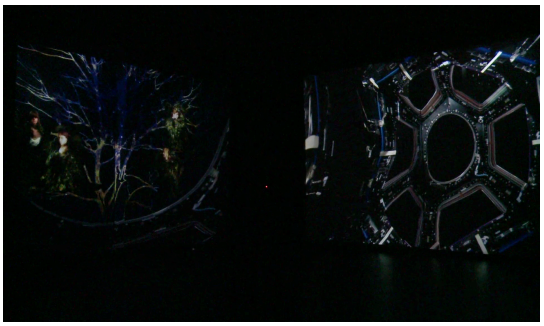
Inclusiveness

Inclusive compositional strategies for surround projections include the audience in the presented narrative. To this effect, the location of the audience within the projection area is necessary to the composition. The projection area is used to create an environment, for which the audience is necessarily a subject. Examples of this device within *Fear of Flight* include projecting the walls of a birdcage onto the area surrounding the audience (figure 70). The walls of the cage serve as an environmental narrative device, locating the audience inside the cage, and including them in the imagery of incarceration. By contrast, non-inclusive strategies for surround composition break the illusion of the projection

area as an environment. Such strategies descend from cinematic modes of representation, in which the audience is necessarily disjoint from the narrative.

Fig 70: The surround scenography portrays an environment (M2 14:41).

Fig 71: The screens divide into separate narrative sequences (M4 3:16).



Cohesion

Cohesive compositional strategies for surround projection unify the projection area into a common plane of representation. Non-cohesive compositional strategies fracture the representational continuity of the projections by presenting discrete audiovisual narrative elements simultaneously, effectively dividing the projection area into smaller units that function independently in the narrative, or in juxtaposition with each other. Techniques from visual design, including ornamentation and framing, can be used to mix separate planes of representation without completely losing spatial and narrative cohesion.

For instance, in Movement 4, the vessel provides a common framing condition for the narratives that take place outside its windows. Their relation to the spaceship unifies the disjointed narratives within the visual composition, even though they do not present a continuous temporal or spatial depiction (figure 71).

Spatial Representation

Surround projection operates differently for audio and visual media. Audio can be spatialized within the receiving field of its projecting speaker sources, according to the location of its perceiver. Projected video appears constrained to the forms that it illuminates. For both media, depth can be created through either physical spatial characteristics or through representation. Consider a sound that has been animated through speaker projection across a large space[21]. The sound's location will change in depth as the sound travels, according to the characteristics of the room and its location from the listener. If the sound contains artifacts of reverberation, it may demonstrate competing spatial characteristics from those that occur as a result of its projection within the physical space. The visual situation is analogous. Spatial characteristics may occur due to the projection of a video image or through its represented depth of field, as constructed through lens artifact, size, and focal distance.

In *(xi),* a depicted procession moves between two screens, physically displaced around the projection space (figures 72a, 72b). By comparison, after traveling to the right screen the procession moves backward in its represented depth even though it is physically projected in the same place.

The projection plane can be divided into many spatial representations. In *(xx),* a view of the stars depicted through a portal appears further than the depicted spaceship wall though they are both projected onto the same physical screen. When the stars become larger it indicates that the two represented

[21] Perhaps using the kind of multi-speaker projection system popular in acousmatic music concerts.

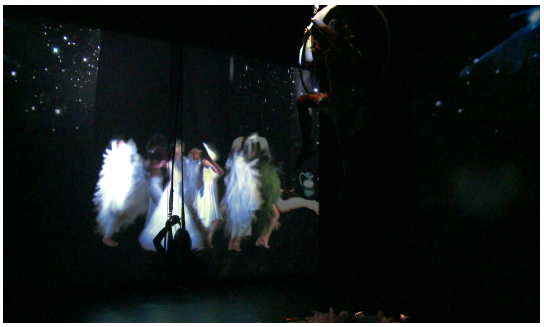
spatial depictions are moving separately, or rather that the spaceship is moving through the stars (example 4).

Liminality

The word ‘liminal’ comes from the Latin word *līmen*, or threshold. At any given moment during a performance, the forward-directed nature of human spectatorship will divide the surround projection area into observable, unattended, and liminal areas of sensory impact. While unattended areas cannot be seen or experienced at all by the audience, liminal ones are experienced indeterminately. Spatial composition strategies that make use of liminal projection areas risk being ignored, or worse: distracting the audience. The indirect observation of compositional elements or events may influence the audience’s sensory engagement, or color their perceived narrative. Liminal areas can be used for their subconscious affect, to provide sensory diversion, or to extend context.

(x) plays with liminal composition by expanding fields of stars and fractal imagery over the left and right screens of the performance space while the main narrative stays fixed on the front (figure 73). The motion in the left and right screens is slow, and depicted in colors with low luminosity to not stand out. It grazes the audience’s attention, but does not command or divert it. More than its details, the continuity of color and shape allows the audience to infer that the sky they see in front of them is larger than the screen, and eventually, larger than their field of vision.

Fig 72a, 72b: A procession is physically displaced between the front and right screens (M3 7:45, 9:17).



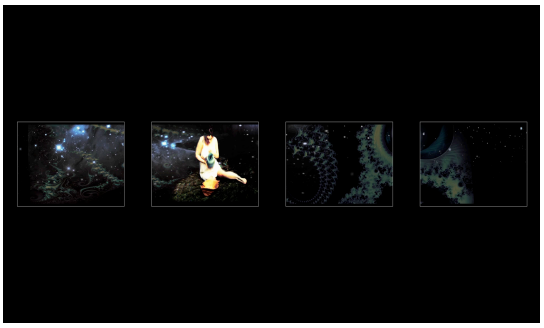


Fig 73: Fields of stars expand in the periphery (M3 5:47).

Fig 74: The harness performances are in the periphery of the dancer (M5 8:43).

Liminal composition is used in the stage choreography. In *(xxiv),* the audience's attention remains with the dancer's silk performance, above them and engrossing. The suspension harness performances that surround the dancer are visible to the audience only indirectly within their field of view (figure 74). Various amounts of the cast are visible. Their movements, which in other circumstance would command the audience's full attention, are sufficient only to demonstrate reflexive similarity to those of the dancer.

Orientation

Within a surround projection environment, the audience may reorient themselves to account for their sensory focal point. A composition can guide the orientation of the audience by moving, or positioning, material of interest outside

of their sensory reach. In order to observe the material, the audience is forced to re-orient themselves in space. There are several compelling reasons to guide the audience's orientation. Orientation can be used as a tool for narrative development, effectively allowing the audience's own movements to divide the surround space. It can also be used to shape the audience's mode of spectatorship, forcing the audience to actively choose where to locate their attention. Interestingly, orientation can also factor into compositional discourse, as there is a strong relationship between kinesthetic movement and the perception of motion. Not only does the re-orientation of the senses provide movement as a change in perspective, but also, the experience of kinesthetic movement informs the perception of external motion through a relational dialog.

In each of *(xiv)* – *(xix),* the visual focus moves 180° as the 'active' window of the spaceship changes. A new image fades into view behind the active window, and the window grows larger until the entire spaceship is distorted. To properly focus on the visual disruption, the audience is forced to re-orient their face from one side of the projection area to the other and literally move with the composition (example 5). The audience's motion reinforces the spatial characteristics of the visual gesture around them. They turn towards the view that is increasing in size while the rest of the spaceship becomes increasingly compressed, drifting outside their focus. A slightly less dramatic use of this technique occurs with the moon's voyage around the performance space in *(viii).*

Saturation

Perceptual psychologists have heavily studied the effects of media saturation on the senses. The perceptual affect of media saturation is a continued avenue of exploration for artists and composers. The scale of media needed to occupy the projection area for *Fear of Flight* is quite large. If the projection area is flooded with video the audience is immersed in a potentially very bright field of light, difficult to escape. If the projection area is flooded with loud sound, it is very difficult for the audience to ignore. Either of these situations have the potential to heighten or tire the sensory engagement of the audience, and to influence their perceptual capabilities afterward.

Media saturation can be used to great dramatic effect. It can convey important emotional cues. It can be used to distinguish sections of the composition, or obscure others. Its reception can be violent. *(iv)*, for instance, is easily separated from the rest of the performance by its bright light and thundering sounds (example 6). The section stuns the audience, filling their senses completely and erasing the aesthetic palette that preceded it. It creates a moment of sensory saturation that must be cleansed through darkness and a quiet pause, before the narrative can continue. The audience's senses are wiped clean by the experience, and left ready for a new compositional dialog to engage them in *(v).* Another great example of media saturation takes place in the final moment of *(xxiv)*, when the stage area becomes increasingly bright and then suddenly dark (figure 69b, example 7). The radical shift in ambient light conditions the audience for the more radical shift in brightness that signals the end of the production and creates a sense of closure with its completion.

AUDIOVISUAL DISCOURSE

Fear of Flight's composition makes use of several approaches to a surround environment to shape its composition. It also considers the affective discourse of combined audiovisual movement. According to their content, the audio and visual materials unify into single points of discourse or act separately; they temporalize and anchor each other's gestures to color the perception of their motion (Chion 13). Four main attributes shape the audiovisual dialog within the composition. They are: synchresis, separation, rate of change, and continuity.

Simultaneity

Fear of Flight uses leitmotif for narrative salience. In *(xi)* The leitmotif distinguishes the procession within the audiovisual composition. It articulates the procession's presence and reflects its importance within the narrative by swelling and fading as the procession dominates or diminishes within the audience's attention. Its transformations maintain the audience's interest in a prolonged event (example 8).

By comparison, synchresis[22] makes audio appear to belong to specific gestures or objects, rather than to accompany them (Chion 224). It gives emphasis to *Fear of Flight*'s audiovisual events by temporalizing their motion. In *(xx),* the sound as flames engulf the spaceship is heard as if it is the sound of the fire combusting, even though it does not stem from the natural world (example 9).

[22] Synchresis is discussed in Chapter 2.

The union adds emphasis to the event. It is experienced viscerally, because the motion of the flames is perceptually reinforced and so occurs with some immediacy in the spectator's experience rather than being distanced through musical discourse.

Synchresis directs the audience's perception of events. For instance, the audiovisual dialog in *(i)* relies on synchresis between the motion of the dancer's depiction and the bells sounds to integrate her motions with those created through image processing. Both are treated equally in the audiovisual discourse through directed emphasis and in result, any tension between the two is relaxed (example 24).

Separation

Fear of Flight varies the meaningful associations between audio and visual events to create compositional tension. In *(ix),* the waves of birds that fly against the moon are accompanied by repeated, fluctuating sounds, interspersed with an electronic hum. The birds' flight oscillates in its forward motion. It matches the rhythmic quality of the wavering sounds, but stands out against the static quality of the electronic hum. The motion of the birds is much less convincing without the synchresis of its accompanying sound. When the sound stops, there is a small perceptual rupture before the motion of the birds is adjusted against the static quality of the hum. The rupture introduces tension that is manipulated into momentum as the sound returns and the image of the birds fades out (example 10).

When the black-cloaked bird-woman appears the wavering sound associated with the birds' flight continues. The woman moves in time with the sound of a bell. Her relatively slow motion matches the ebbs and flows of the bell's harmonics and becomes dominant in the audiovisual discourse of the scene. The synchresis emphasizes the shared gesture of her movements and the bell over the wavering sound and other elements in the scene. When the bell is again struck, there is no matching change in the motion of the woman. A rupture is created in the illusion of their union. The rupture is minimal as the bell strike is still in rhythm with the woman's movements; however, it creates a small amount of tension to be released as the woman again synchronizes with the bell's tail. Further bells hits change which aspects of the woman's motion are emphasized, from the length of her gestures to the points that synchronize with the strikes, depending on the sharpness of their attack (example 10).

Anchoring

Varying synchresis introduces tension that can be manipulated to create compositional discourse. It also changes the experience of motion in audiovisual events. The temporal experience of sound is more defined over time than that of image (Chion 10). When aural and visual gestures appear together with different rates of change, the visual motion is anchored towards the aural motion (224).

The spaceship's windows' distortions in Movement 4 are visually similar, but individually synchronized with the sound that accompanies each. In *(xviii),* the sound becomes discernible at a low volume after the visual movement has

already started and increases in volume and pitch in a slow and steady rate. It speeds up a little near the end of the window's movement and stops rising as the window stops growing. Afterward, the sound begins to fade within the composition (example 11). Examining the image without sound, the window's rate of change grows quickly and then slows down part way through its distortion. Together, the window appears to move at a slower and more constant speed once the accompanying sound has attained sufficient volume. The audiovisual gesture is anchored by the audio's motion. The beginning of the window's distortion appears quite fast in relation to the audiovisual motion it precedes, producing a jolting sensation in its motion. Without sound, the distortion's movement appears smooth.

Articulation

Not only does sound shape the perceived rate of visual motion, it articulates it, so that visual motion appears to coincide with the closest sound. Visual gestures that overlap with aural ones are emphasized and anchored through synchresis. Motion that appears outside audiovisual union is experienced in relation to it and causes tension, creating interruptions that delineate the points of synchresis with a beginning and an end, and make them especially salient. The visual motion is not interrupted by synchresis, but it is ignored outside of the audiovisual gesture. Its as if the image is gathered around the accompanying sound where it can be anchored and experienced in full temporal resolution.

To return to (ix), when the depiction of the dancer on the ladder is jolted, it moves downwards and to the right and then back up and to the left (example 12). It blurs and shakes during the gesture. When viewed without sound the motion has two endpoints and a shaky path between them. The soundtrack accompanies the visual motion with a loud knock before the first endpoint, and followed by several other knocks of diminishing length. With the soundtrack, the motion appears to match the rhythm of the knocks. The shaking of the camera is accentuated according to the timing of the sound.

KINESTHETIC ACCENT

Fear of Flight's stage choreography was created to function on many levels. It develops the work's theatrical discourse and can be evaluated from within the aesthetic framework of dance for its own quality of movement. It also participates in the work's abstract compositional dialog. *Fear of Flight* considers the affective discourse of inter-sensory motion, both kinesthetic and audiovisual, and attempts to organize them within a single framework. To consider how stage performance informs inter-sensory composition, special consideration is made for the body's ability to inhabit three-dimensional space, the perceptual qualities of its physical movement, and the experience of theatrical presence that comes from live performance.

Audiovisual Movement and Physical Performance

The affective discourse that surrounds audiovisual motion applies to physical performance, as it participates in the audience's aural and visual experience. Chion's understanding of both synchresis and the audiovisual contract reference the natural world, where aural and visual sensory experience is combined. In a mixed production environment, physical performance and media stimulate the same senses and are used together to create the audience's experience. The visual aspect of stage performance can be accompanied by external audio and organized according to the principles of audiovisual composition. Sounds that are created on stage can similarly accompany the movement of projected video.

During *(v) out of reach,* the bird-women are accompanied, not only by the soundtrack but also by the sounds of their costumes, disturbed while in movement. The sounds created on-stage, contribute to the audiovisual discourse of the scene. The flapping of the capes articulates the visual motion of their displacement, and creates tension when their motion is not voiced. Otherwise, the music and choreography are only weakly synchronized, with specific audio events providing accent through synchresis when they fall in time with the movements of the bird women. For instance, the scurrying sounds in the music co-ordinate with specific gestures within the bird-women's performance (example 13).

Comparing visual motion that occurs within stage performance and in projected video is complicated by medium-specific representations of space as well as by the visible seam that occurs between the two planes of representation.

The viewer must employ variable metrics to evaluate their motion before integrating them within a common visual framework. The mediated language of video complicates the comparison by flattening three-dimensional space into two-dimensions. It incorporates operations, such as zooms or pans, to move the viewer's perspective through three-dimensional space without modifying spatial relations in physical space. By contrast, manipulating the audience's orientation or gaze in physical space will influence both their perception of the stage performance and the video frame, which has physical support in the three-dimensional space of the stage. Physical space can be traveled through, and re-framed, but not re-interpreted without specific illusionary device. Spatial relations depicted within video can be more extreme than those that occur within a theater because they are not restricted by the physical laws of perspective.

To view the video for section *(x),* the audience is forced to change their seated perspective to face the back screen rather than the front screen, providing a clear structural distinction from *(ix)* (example 14). It is the audience's movement in physical space that guides what they see of both the stage performance and the projected video. The dancer, suspended above the audience, is visible when they readjust their orientation to follow section *(x),* and interrupts a significant fraction of their view. Depending on the details of their orientation, the audience experience a variable mixture of the final material from *(xi),* the dancer's performance, and the beginning of *(x)* which begins with an image that moves irregularly across the screen, framed by diagonal panning, as if the audience

themselves are still moving in relation to the image. The effect is slightly disorienting.

The spatial realities of projected video and physical performance have strong consequences for their mixed perception. Physical performers are not confined along projection surfaces. Their size and angle change according to the laws of perspective. They can obscure, or visually interrupt, the other visual elements of the production, and their ability to do so varies according to their spatial relationship with the audience. By contrast, if the audience, the projector, and the projection surface stay still, the projected video frame will maintain a consistent spatial perspective whatever it depicts. Elements within the projected video will not obscure or visually interrupt events in physical space that their screen would not otherwise. The space that is depicted by video inhabits the physical space of its projection. To defeat physics, screen's that are transparent under certain conditions, but not others, such as scrims, are sometimes used. *Fear of Flight* makes use of interrupted back projection to similar effect *(iii).*

In *(v) out of reach,* the projected video image is sometimes obscured by the physical performance of the cast, who move between the audience and the projection screens (example 15). They obscure more of the projections when they are closer to the audience. An opposite effect is created in *(iii).* The projected video obscures the physical performance of the supporting cast, which is revealed through shadow as lights illuminate the rear of the projection screens (figure 61b).

Immediacy

Live performance and projected audiovisual media are not equally compelling. In a space as small as that in which *Fear of Flight* is staged, the kinesthetic dialog of physical performance has advantages over projected media in terms of its importance to the audience. The loudness, brightness, and scale of projected media, however, can dominate the audience's senses, creating a sense of perceptual immediacy too exciting for the physical world to compete with. Large video images and loud sounds can drown out any physical performance on stage. The brightness of the video image naturally attracts the viewer's gaze. To compete, stage blocking and lighting are used to illuminate the performer and to ensure that he or she is not directly competing with the video. Changes in motion also direct the audience's attention between the live performer and projected video.

Fear of Flight's compositional discourse makes use of proximity, presence, and narrative engagement to direct the composition between its physical and projected narrative. In *(ii),* the dancer performs quite close to the front projection screen. The image on the screen is incredibly large and bright compared to her, but is surrounded and contained by darkness. The dancer is well lit and is often staged to appear against the video's dark background rather than the large character it features. Though the audience's gaze is naturally drawn to the video image, the performer remains both discernible and interesting due to her proximity to the audience (example 16). The large scale of the video functions as architecture for the performance, rather than dominating the

performance's content. Truthfully, the video is so large compared to the audience; it is hard to see all at once. It usurps the audience's attention when it is especially bright, when the characteristic of its motion changes, or when it rests on an especially compelling image. The dancer reasserts her presence and becomes dominant within the composition when she approaches the audience, or when the attributes of her motion, or her position, on stage change. The audience's attention is guided between them (example 16).

In three-dimensional space an object's relative dimensions increase with proximity to the viewer. The eye is very sensitive to physical proximity. Close motion, appears as more significant than comparable distant motion, simply because it occupies more of the perceiver's visual field. The changing scale of an object in motion is sufficient to explain why proximity attracts attention in performance. Objects, which are closer, are easier to focus on, and more likely to generate significant motion if they change. Consider that while approaching or retreating from a viewer, the changing scale of an object generates extra motion. Even without motion, however, proximity contributes to immediacy. In the case of *Fear of Flight*, the boundaries between performance and audience space are invisible, and the distance almost negligible. The senses of those audience members nearby are overwhelmed as a performer approaches, limiting their ability to sense much else besides the approaching movement.

Projected video is especially compelling when it adds new information to the scene. Otherwise, the immediacy of the stage performance gains more of the audience's attention. In *(v) out of reach,* the movements of the depicted bird-

women in the projected trees are occasional and sudden. They are similar and repeat themselves. More importantly, they occupy only a small amount of the potential screen real estate available. The depicted characters are noticed by the audience, but diminish in importance over time. When the performers on stage are near them, the projected characters occasionally catch the audience's attention with their sudden movements, re-asserting their presence. As the performers approach the audience, however, they dominate the audience's perception, obscuring any sudden changes within the video, small by comparison (example 18). For those audience members seated nearby, little but the closest aspects of the performance may be visible. The proximity of the performers to the audience allows their movements to dominate the surrounding composition.

An important consideration *in Fear of Flight's* reception is the sense of immediacy brought on by the audience's thrill of danger. During *(vi)* – *(vii)* and all of Movement 5. The dancer's aerial performance takes place quite close to, and directly above, the audience. The standard barriers between the audience and performers have been removed: they are quite close to each other. The audience is immersed in the performance, with the result that they cannot help but react with the proximity of movement whenever a performer is on stage. This is true during the entirety of the production, as the dancers pass quite close to the audience, but especially so when the performance takes place in the threatening location above. The audience not only thrills at their situation, but also gives extra attention to those gestures that take place there. Both aerial performances bring the audience to pronounced heights of their sensory engagement.

Reinforcement

Physical performance complements or contrasts *Fear of Flight*'s projected audiovisual material by engaging in the same narrative and compositional discourse, or ignoring it and offering an alternative. Complementary physical performance reinforces the significance of specific audiovisual gestures within the composition to make them more salient. It integrates the stage performance and projected media into a larger, unified, narrative, and can direct the composition between them. Contrasting physical performance and audiovisual material emphasize their difference, and compete for the viewer's attention. The stage performance or the projected media will dominate the composition, and their different qualities contribute to their combined affective discourse.

Fear of Flight's composition features many moments where the video and stage performers seem to interact. In these moments, the projected video and stage performance reinforce each other's narrative developments and increase their salience. At the end of (xii), when the dancer touched her depiction's heart to release the birds that are trapped there the physical gesture initiates the audiovisual one, and cements its perceived importance within the composition. In result, the audience is aware of the exact moment that the gesture begins.

Fear of Flight's stage performance and audiovisual media complement each other when they voice the same gesture with or without acknowledgement. In *(xxi),* the dancer extends her arm in front of her, so that her shadow seems to reach towards the umbra of the eclipse (example 20). Her gesture complements

the umbra's motion, combining in a single gesture. The dancer faces the front screen and guides her shadow towards the approaching dark object. She is aware that her shadow's motion complements that of the dark object. The shared gesture is acknowledged in the performance, and as a result, the dancer's presence is part of the gesture. Other examples of complimentary motion appear more as a confluence of events. For example in *(v) out of reach,* as the bird-women first join each other in a single corner two of the projected bird-women flutter their capes and face them (example 21). The gesture that results incorporates the on stage bird-women and those in the video.

Fear of Flight's use of real-time captured video from the performance specifically cultivates a complimentary relationship between the stage performance and the projected video. In the scenes where real-time captured video is incorporated into the production's projections, the shared gestures that are voiced between them and the stage performance are reflective. They literally originate within and refer to the same temporal-spatial moment of the stage performance, even when they demonstrate different angles or visual treatments to the viewer. Example 22 shows the dancer performing a short drop on the silk in *(xxiv)*. The reflective motion between the video and stage performance creates a shared complementary gesture in which the points of synchronization are emphasized. Specifically, the dancer's vertical motion is strongly reinforced. Her horizontal motion is articulated in fixed relation to her projected depiction's, as the live feed captures a fixed angle that might contradict the experience of the audience.

In *(ii),* the real-time video feed of the dancer leads the projected imagery to increasingly reflect the live performance (example 17). The dancer on stage originates the motion, with her real-time depiction responding to her perceived agency. The audience contrasts the projected video with the dancer's motion; it is experienced as an extension of her performance, rather than independently, effectively extending her presence on the stage. The dancer's performance becomes the focus of the audience's attention with deviations in the video imagery providing a kind of counterpoint to her gestures.

While complementary relationships between stage performance and audiovisual motion create shared compositional gestures with reinforced attributes, contrasting relationships emphasize difference. Rather than diminish the composition, difference informs *Fear of Flight's* narrative as well as the competing qualities of movement. In *(iv) awakening* the shared frantic attributes between the stage performance and lighting complement each other. Compare this with *(iv) transformation,* when the cast leaves the stage area and the dancer walks out into it. The strobe light and frantic refrain in the music continue, but the stage performance no longer matches their energy. The dancer's slowness is somehow more apparent in contrast to the rapid motion of the competing media (example 6).

DISCREPENCIES IN THE DOCUMENTATION

The performance featured within *Fear of Flight*'s documentation differs from the April 2012 production in several crucial aspects. The composition

examples and analysis refer to the April 2012 production rather than the documentation, however, the documentation is included as a support for analysis and example.

The documentation features a different supporting cast than did the production. Two original cast members were not available for the documentation shoot, and only one replacement was found. As a result, the surround choreography of Movement 2 and 5 could not be shown in their entirety and the tableaux of Movement 2 were scaled down in size for the documentation performance.

Fear of Flight's cast perform in the video projections as well as on stage. Their recognizable features throughout the live and projected scenes help advance the work's narrative and build a shared sense of presence between each character's representations. Only two of the documentation production's cast, appear in the video projections, making the documentation a poor reference for the production's narrative characterization.

Unfortunately, the change in cast meant that the group choreography of Movement 2 and 5 that appears in the documentation is relatively unrehearsed. The cast's movements are not always synchronized appropriately. The reader is advised to use their imagination when considering the examples from the documentation.

CHAPTER 5: ANALYSIS OF *FEAR OF FLIGHT*

SPATIAL AND ONTOLOGICAL SYNCOPATION

Fear of Flight's video projections explicitly depict characters and events that contribute to the narrative. The events portrayed within the representational sphere of the video projections are re-signified by the production's theatrical discourse to function as part of the same representation portrayed on stage. They are used to extend the boundaries of the temporal-spatial moment of performance by re-situating the stage performers into a dynamic scenographic context. Their playback, too, re-situates the representations they depictions into the domain of the theatrical event where it is presented as occurring 'live'. Any mediatized performance depicted within the video is thus able to function as part of the events on stage.

To deconstruct how Fear of Flight's projected video participates in the construction of its theatrical discourse, I will first examine the rupture that occurs between the depictions on stage and those in the video. Second, I will look at the expanded theatrical presence attributed to the production's characters under their multiple representations. Finally, I will postulate on the relationship between the production's theatrical and compositional discourse.

Stein uses temporal syncopation to explain the uneasy relationship between the real time of the audience and the theatrical moment they are

witnessing in performance (93). I have previously[23] expanded her concept with the term spatial syncopation to discuss the discrepancies that occur when projected spaces are placed alongside physical ones within a performance. The uneasy mixed realities that result are a product of mediated spheres of representation functioning alongside and within theatrical representations. I now introduce the term *ontological syncopation* to describe the hiccups that occur when overlapping modes of representation portray different states of being.

Video Scenography

The projected video provides a scenographic context for *Fear of Flight's*, stage production. The time-based nature of the medium allows the scenography to be fluid and specific, rather than repurposed and general. Even though the four video screens maintain a consistent physical arrangement, the spatial relationships they convey change with the depicted imagery they hold. The spatial attributes of the stage area are re-interpreted throughout the performance. Neither the scale nor height of the theatricalized performance space remains fixed.

Movement 2 provides an excellent overview of the changing spatial constructions created through *Fear of Flight*'s scenography. The video projections inform and extend the narrative that is created through performance. They provide a context for action that re-signifies the stage area repeatedly through their dynamic spatial indicators. The narrative context changes from an

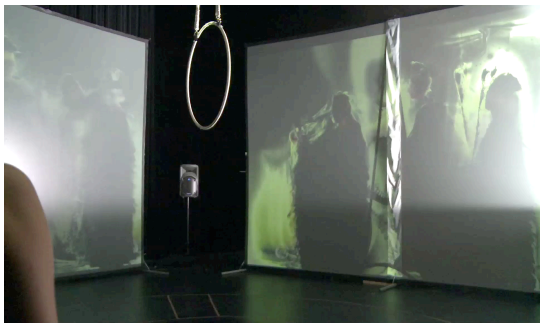
[23] In Chapter 1.

abstract location filled with patterns, shadows, and later, creatures, to a clearing between two large trees. It moves to the edge of a forest, travels through the sky, and finally, settles above the forest. The stage area is not partitioned into separate locations, other than possibly through height. Instead, the stage area is repurposed as the surrounding scenography provides new narrative context. The spatial representations that are constructed through the details of the scenography do not need to maintain consistency over the course of the performance. For instance, both scale and spatial continuity can change from scene to scene.

In *(iii),* the narrative's location is more abstract than determined. The video projections create an ornamental environment (figure 75) in which the narrative takes place. The theatrical space between the projection screens isn't characterized through comparisons of size of perspective. In fact, when *(iv)* begins, the strobe lights and repeated/mirrored imagery distract the audience from any conception of continuous space (figure 76).

Fig 75: An abstract location (M2 back 00:13).

Fig 76: The lights and repetition distract from continuous space (M2 01:48).



In the second half of Movement 2, the video projections provide the narrative with changing locations in a continuous space. *(v)* takes place in a

clearing, depicted through the use of two trees as foreground elements on either side of the performance space (figure 77). Extra branches, mist, and green coloring are used sparingly to suggest a forest environment receding into the distance around the borders of the stage area. The space represented by the clearing, as surrounded by the depiction within the video projections, is not necessarily the same physical dimensions of the stage area. The illusion works because of the theatrical convention of performance that relies on suspended disbelief. Later, in *(v) the flock*, the projections change their content. The trees disappear from the foreground, and are replaced by women enveloped by the same mist, as were the trees previously. After several moments, a dark, colorful, forest is revealed through the mist behind them. The scale of the trees is much smaller than those previously shown (figure 78). The stage area is re-signified to be a clearing at the edge of a forest, and a much larger space than previously visible. The same scenographic elements are repurposed to create a different spatial illusion.

Fig 77: A clearing is depicted through the use of two trees (M2 04:19).

Fig 78: The scale is much smaller than the trees previously shown (M2 09:48).

In *(vi),* the scenery of the forest's edge is replaced with blue-grey gradients that depict the dancer's voyage through the air. She is signified to have

entered a new location through the different imagery, and with the change, a new spatial relationship between theatrical space and depicted scene emerges. The gradients rise and fall to demonstrate her flight against the horizon (figure 79). The theatrical space maintains a consistent spatial relation while traveling with her through a changing surrounding scene. The scenography evolves in relation to the dramatic flight of the performer, who is portrayed at a fixed position from within the perspective of her movement.

The perspective in broken soon afterward, when the blue grey gradients are replaced with blue smoke suggesting clouds. The spatial relationship within the theatrical performance space becomes amorphous and abstract. Although it is clear that the performer is still flying, there are no longer indicators to mark any perspective. The situation is further confused by the projected real-time video used in the performance, which displays a live processed feed of the dancer at an impossible perspective, to demonstrate her complete removal from the ground (figure 80).

Fig 79: The dancer's horizon rises and falls as she flies (M2 10:16).

Fig 80: The live feed of the dancer is at an impossible perspective (M2 13:15).

After a prolonged flight narrative, a new scenographic context is revealed. The video projections depict the tops of the trees, previously seen to recede

behind the women at the edge of the forest. The trees are now much closer and surround the dancer, showing her to be in a much smaller area than previously (figure 47a). The scenography places the dancer's narrative within the forest, at the upper tree line. Within the theater, she is suspended above the audience on the aerial hoop. There is no fixed relationship between the performer's actual height off the theater floor and her character's height within the narrative, other than that they are both off the ground. Any spatial relation between the theater ground and the ground within the narrative changes over the course of the dancer's aerial performance.

Movement 2 demonstrates how the video projections continuously redefine the constructed spatial representation of the stage area. Another important example occurs throughout Movement 4, when each of the four spaceship windows unfolds and overtakes the narrative. Although the performance area's actual dimensions remains fixed during Movement 4, the top and sides of the portrayed space are collapsed and expanded (example 5). The spatial representation of the performance space is literally manipulated by the projected scenography.

Each of the scenes depicted in *Fear of Flight*'s video projections meets the performance space between the screens, and participates in a shared theatrical illusion. The scenography and stage area are both re-signified within the context of the performance to portray a continuous and homogenous world. The different spatial realities that exist between them add tension to the mechanism of illusion, as do their different temporal realities, one fixed, and attesting to its past

construction, the other manufactured in the present, both participating in a shared theatrical moment other than the moment of the audience. To add to these difficult negotiations, the illusion of continuity must pass between different mediums of representation, one physical and one made from projected light, rendered equal through the process of theatricalization.

Video as Psyche

Fear of Flight's video projections construct and extend the narrative's spatial representations, but do not always refer to environment. The depicted imagery of the video projections can externalize the narrative's psychological discourse by representing a character's psyche. Movement 3's theatrical construction demonstrates the complicated temporal-spatial syncopation necessary for video projections to function this way.

The video projections in Movement 3 operate in a complicated territory between symbolism, narrative, and scenography. While *(ix)* reads as an allegory to describe the narrative thus far, *(x)* uses symbolic imagery to express a changing psychological process as the dancer attempts to dream up a solution to her problem. During both sections, the dancer is surrounded by scenography that is composed of, and refers to, her dilemma. She is on stage, but the temporal-spatial representation depicted by the video projections is not contiguous to her performance area. She is able to watch and react to the imagery, but is kept separate from it, through some kind of ontological barrier.

Physical performance is always separated from mediatized performance through an ontological barrier. Elsewhere, in *Fear of Flight*, the barrier is ignored. Mediatized performance and physical performance are theatricalized to function within the same plane of representation so that they can co-exist within the narrative and contribute to the production as equals. The significant ontological barrier in Movement 3 is not one of video mediation, but of psychological abstraction. The dancer cannot participate in the representation of the projected imagery, not because the projected imagery does not share her temporal-spatial moment, but because it has been signified within the narrative not to do so. She is able to experience the moment that the video projections depict, but she cannot inhabit it.

Fig 81: The dancer cast's an uneasy focus on the video projections (M3 3:13).

Fig 82: The dancer's depiction acknowledges the dancer (M3 10:33).

The dancer's relationship to the psychological scene around her is conveyed to the audience through several theatrical mechanisms. First, in *(x),* the dancer does not interact with the imagery around her. She watches the depicted narrative but does not influence it, and stays removed from it, literally above it. Her inaction during this section is crucial to the effectiveness of her separation. Second, the dancer not only appears as a character within the

imagery, but her projected depiction functions as the lead character within the scene. Her depiction does not acknowledge the stage area. Instead, the dancer's live performance cast's an uneasy focus onto the video projections (figure 81). The audience must disengage from the work's previous theatrical discourse surrounding the use of projected video, to view its content through different eyes, those of the character within the production's theatrical narrative.

The ontological syncopation that takes place in *(x)* allows a representation of the dancer's psyche to co-exist with the temporal-spatial representation she occupies, albeit uneasily. Both planes of representation participate in the construction of the narrative. The discourse of Movement 3's video projections is further complicated in section *(xii),* when a procession of characters, who originate within the psychological ontology of *(x),* cross the divide to share in the dancer's temporal-spatial moment. The procession that turns to face the dancer in section *(xii),* clearly functions within the same portrayed temporal-spatial moment that she does. The two planes of representation are able to interact and influence each other. Unlike in section *(x),* the depiction of the dancer who leads the procession in the video scenography, acknowledges the dancer on stage, waiting for her to approach (figure 82). More importantly, the dancer on stage has now once again become the subject of the narrative. The projected cast is still part of her externalized psyche, but is no longer signified as being of a separate ontology, or rather, some key difference between ontologies has collapsed in the theatrical discourse. *(xi)* serves not only to span musical structures, but also the ontological divide between them. The resulting encounter between the dancer

and the externalization of her psyche is momentous. It propels the narrative into the production's climax, where the dancer learns to fly without wings.

EXPANDED PRESENCE

Fear of Flight's characters are constructed through several modes of representation. They are portrayed on stage, by performers, who are present in the same temporal-spatial moment as the audience, outside of the production's theatrical discourse. They are portrayed through mediatized representations within the video projections, derived and digitally constructed from performances that took place in the past in front of a camera. Finally, they are portrayed through mediated artifacts of live performance, including shadows and real-time video feeds of the stage area that have been manipulated through image processing techniques and composited into the projected video scenography. Each mode of representation is signified to function as presence within the theatrical discourse of the production. All of them are *staged*[24].

Fixed Representation

Depictions of the cast, wearing the same or similar costumes to those worn on stage, appear in *Fear of Flight*'s video projections during all five movements. The depictions portray the same characters as do the performers on

[24] According to Cormac Power's explanation of theatrical presence (14), discussed in detail in Chapter 2.

stage, and participate in the production's narrative construction. They extend, and contribute to, the performance, functioning alongside the performers on stage even though they are subject to different barriers of representation. For example, they are not subject to gravity and cannot break the frame of their projection surface.

The actions of the depicted characters are fixed, having been created from pre-rendered video material; however, in their presentation they are re-signified within *Fear of Flight*'s theatrical discourse to participate in the same sphere of representation as the narrative. There, they occupy an equal position to the characters portrayed on stage, though they do not always belong to the same ontology. Instead, they alternate between functioning as do the characters on stage, and participating in psychological or allegorical modes of representation that are brought into the narrative through ontological syncopation.

According to Cormac Power, theatrical situations that rely on multiple modes of presence[25] put *presence into play* (9). Characters that are portrayed in the projected video are conjured through the play of their presence within *Fear of Flight's* theatrical discourse. In the simplest case, the video depicts a photographic referent, an original performer whose performance was captured within the video footage. The video projection, and the forms it depicts are literally present on stage as organized light that falls on a screen during the performance. The referent of the image is present, conjured through their aura in the projected video though they may have been modified or fictionalized through

[25] Cormac Power's multiple modes of presence are discussed in Chapter 1.

digital process, as is the original performance of the referent and by extension the character they portrayed in that performance. The character that is portrayed within the performance of the production by the video depiction is fictionally present when the video is projected during *Fear of Flight's* run.

Fear of Flight's characters are complicated through context and by the multiple modes of representation that are collapsed in the production's theatrical discourse. The same characters are portrayed within the projected video and on stage. Not only are these portrayals multiple and concurrent, but they co-exist within the same (syncopated) temporal-spatial moment, and are signified to construct a single character within the production's theatrical discourse. As a result, the portrayals conjure each other, inform each other, and evoke each other. The presence of the characters is *expanded* through being put into play within the production's varied spheres of representation.

Fig 83: The two flocks of bird-women have the same identities (M2 03:51).

Fig 84: The bird-women are also the dreaming women (M2 08:29).

Multiple portrayals of the same characters co-exist within *Fear of Flight's* production, sometimes at once. In *(v) out of reach,* the bird-women depicted in the trees, simultaneously appear on-stage, portrayed by the supporting cast. Although the two flocks of bird-women are dressed differently, they have the

same faces, the same narrative identity, and a similar vocabulary of movement (figure 83). Later in *the flock*, when the characters on stage have finished their performance, their video depictions are replaced with new expressions of their identities: as dreaming women on beds of feathers.

The bird-women are present throughout *(v),* but the experience of their presence is complicated by their multiple incarnations. The depicted women dreaming in *the flock* and *escape* are the same characters as the bird-women previously depicted in the trees, and portrayed on stage in *out of reach*, transformed to convey some other aspect in the narrative (figure 84). The characters in the video are also on stage performing different actions. The multiple, co-existing portrayals can be read as a division in *Fear of Flight's* dramatic structure between allegory and narrative, or narrative and deeper meaning. They could also indicate a multiplicity of intention or being: the characters in the narrative intend both, or do both, sets of actions. The theatrical discourse of *Fear of Flight* does not make any distinction between these diverse interpretations. If the projected bird-women are of a different ontology than those on stage, it is not acknowledged, nor is it relevant.

Real-time Representation

As well as live stage performance, and fixed video depictions, *Fear of Flight* uses artifacts of live performance to create real-time representations that function as characters, or extensions of characters, within the production's theatrical discourse. The actions of the real-time representations are determined

in the moment, as they are created through processes that mediate live performance. When their subject is visible, the mediation is obvious: any motion in the real-time representation originates with its subject. When their subject is not visible, the real-time representation stands in for the performance, substituting the mediated version. The implementation expands the presence of the original performance, and characterizes it with new affective discourse to reposition it within the narrative.

Fear of Flight uses two kinds of mediation to create real-time representations of its characters. The first relies on a live video feed of the stage performance. The feed is processed through image-manipulation software before being composited into the video projections. The second relies on shadows, created through interrupting stage lights or video projections. Movements 1, 2, and 5 incorporate a live video feed, while shadows are used all over the production, being a natural result of the video projection set-up on stage.

In *(ii)* the dancer is portrayed on stage by a live performer, and depicted in the projected video by a fixed representation. A real-time feed of the performer is composited within the projected video, offering a third depiction of the dancer to co-exist with the others (example 17). The real-time representation of the dancer is captured from a viewpoint similar to, if higher than, the audience's. Over the course of its use, the feed's image is manipulated through spatial and temporal processes that slow down and blur the dancer's representation. Her fast movements disappear while her held positions are accentuated. The depiction is

abstracted by the visual process, and made to resemble the fixed representations over which the real-time feed is composited.

On one hand, the real-time mediation of the dancer functions as a performance prosthetic to the dancer on stage. Her presence has been extended into the aesthetic realm of the projected video, where she is subject to its boundaries of representation and any ontological discourse it follows. The real-time representation functions without its referent as a fixed character would in the projected video. On the other hand, its context informs the dancer on stage so that her actions convey more than their individual meaning. The dancer's presence is expanded between these two representations, so that the discourse of one colors the other and vice versa.

Fig 85: The processing celebrates experience over act (M2 13:07).

Fig 86: The processing turns her body into constellations by (M5 06:53).

In *(vi)* and *(xxiii)* a real-time feed of the dancer's aerial performance is composited into her scenographic environment. Both feeds feature a single perspective that contradicts the angle at which the audience views the performer. The mediated representation is still, however, obviously derived from the character portrayed on-stage. The real-time representation of the dancer appears in *(vi)* within the clouds before her. The feed is processed sideways and shows

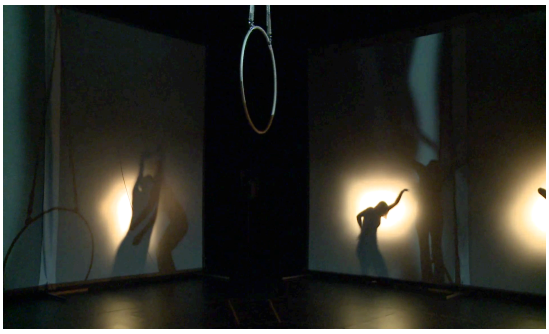
many captured images of her flight superimposed together in a temporal montage. The individual images privilege and connect instances of her performance that otherwise may have been lost in her greater motion. The representation informs the dancer's performance and contributes to its interpretation as one that celebrates experience over act (figure 85). In *(xxiii),* the real-time feed abstracts the dancer's body into stars and galaxy formations. Her presence is expanded to evoke astronomical associations and communicate her transformation into a constellation (figure 86).

Mixed Representation

The presence of the shadows that appear in *Fear of Flight's* narrative is in play. While elsewhere in the production shadows serve only as artifacts of live performance, during *(iii)* they are explicitly depicted within the video projections without causal action on stage. During the 'a' parts of the repeated 'ab' sections, the shadows are derived from video footage of the supporting cast members and attest to their mediated performance. More importantly: the shadows are distinct, but interchangeable, and are differentiated not through their features but through their position on the screens that surround the stage area (figure 87a). The video footage, from which each shadow originates, stems from several performers. The collection of modified footage is projected into the same location on the screen, regardless of origin, to form a single shadow character. For this reason, the shadows create the fictional presence of a character as well as having auratic

presence (of the initial performance) and being literally present as a representation within the projected video.

Fig 87a, 87b: The depicted and actual shadows portray the same characters (M2 00:50, M2 00:32).



During the 'b' parts of the repeated '(ab)' sections, the shadows that appear within the projected video are depicted through actual performance behind the screens (figure 87b). The shadows that the cast members create hold auratic presence of the performance. They attest to the cast members' literal presence behind the screens. They also have literal presence: they are actual shadows appearing within the performance as themselves. In the theatrical dialog, however, they continue to create the fictional presence of the shadow characters, appearing within the same locations as the characters occupy. When the cast appears on stage dressed in black in *(iv) awakening,* they appropriate the identity of the shadow characters. Their presence is a complicated mash of literal, fictional, and auratic presence that invokes all the previous depictions of the same characters.

Shadows form a major component of the visual language associated with *(iii)* and *(iv).* The characters take shape over several modes of representation. Their presence is expanded between projected video, artifacts of mediated live

performance, and live stage performance. In *awakening*, the cast members become extensions of the projected iconography, occupying characters that have already been created. The narrative weight of stage performance is so heavy, that it tends to signify the 'authentic' presence of characters within theatrical discourse, and posthumously characterizes any other mediated portrayals as auratic. *Fear of Flight*'s narrative makes use of the interstitial ambiguity at work when presence is in play to evoke a dream-like quality, where its characters participate in several overlapping ontologies at once. Within the theatrical discourse, they are mythological and concrete, psychological, and allegorical, fictional, auratic, and literal.

Constructed agency

The characters that are depicted in *Fear of Flight's* video, work precisely because they are signified to have agency within the theatrical discourse. Their actions matter, and form the basis for the production's narrative, as well as influence the actions of the performers on stage. It doesn't matter whether the projected characters can make decisions in the moment, or whether their referents can 'corpse'. It matters that they have been signified as being able to do so inside the conventions of the performance.

The four comets that travel towards the suspended bird-women in *(xxiii)* are not characters within the production, but they do something within the narrative. They act with purpose, obviously disrupting their path to seek out the four bird-women on stage (example 29). They are signified with agency; they act

to produce a particular result. To deconstruct this assertion, realize that there is no comet outside of the theatrical discourse of the production. The comet is represented within the projected video according to the values of contiguous pixels, and in the performance, according to the specific construction of the production's video scenography, including the locations of the four screens and the synchronization of their playback. The comet has no external identity, and certainly cannot make decisions to act any particular way. A real comet would act according to the laws of physics rather than to serve any other purpose. The theatricalized comet acts under a different force, however, when it participates in *Fear of Flight's* narrative. While any intention it reveals originates firmly with the artist who constructed its representation, the comet is anthropomorphized within the narrative by its function. Its agency is constructed within the theatrical discourse to serve the narrative. For the small window in which it acts, the comet functions as a character and exudes a fictional presence.

Constructed agency advances the complex intermedia discourse that informs *Fear of Flight's* characters. To once again revisit the end *(xii)* the characters depicted within the projected video interact with the dancer on stage. The procession depicted within the video turns and waits for the dancer on stage to approach them. The leader of the procession, a depicted version of the dancer, reveals her heart to the character on stage. It releases birds when the dancer on-stage extends her hand to touch it (example 19). The narrative interaction relies on the signified agency of the dancer's depiction in the video, in

order to function. The depiction *does* something within the theatrical discourse. The depiction is performative[26], whether or not it is performing.

An astute observer may remark that all agency attributed to characters within theatrical discourse is constructed, regardless of medium. Agency portrayed by performers on stage is no less constructed than that portrayed otherwise. While the process is transparent in the physical world of the stage, it is less so in the case of projected video. It is usually, thinking, feeling performers, who possess their own agency outside of the theatrical discourse, who portray the characters on-stage. Projected representations are not (as of yet) self-aware. Constructed agency is what turns narrative elements into characters within theatrical discourse. It imbues its subject with fictional presence, because agency implies an acting subject.

INTERMEDIA DISCOURSE

Audiovisual Composition and Narrative

Along with its role in establishing dramatic context and events, *Fear of Flight*'s scenography lends affect to the narrative through its audiovisual discourse. The pacing, edits, and motion of the projected video, in dialog with the music and lighting, direct the production's composition. They temporally structure the work, preparing and conditioning the audience's senses to experience the narrative. While this dialog manifests at the level of affective perceptual

[26] In *How to Do Things with Words,* J.L. Austin coined the word performative to describe utterances that had the effect of doing something (5-6).

influence, it also establishes the emotional tone of the production and contributes to the interpretation of dramatic events, as does the physical experience of the projected media immersion.

The visual motion of *(i)* is linked with the sound of processed bells (example 23). It is emphasized and temporalized to the slow pace of the music through synchresis. The audiovisual dialog of the scene informs the on-stage performance that follows. Though the music that accompanies the dancer is much faster paced, and the video that plays offers several scales of motion, the slow, dreamy, feeling of *(i)* haunts *(ii)*'s composition. The audience has already developed a sensory experience related to the imagery that does not dissipate with the change in material.

The audiovisual dialog in Movement 3, demonstrates another facet of the relationship between audiovisual motion and narrative construction. Throughout Movement 3, small variations in the visual or aural density of motion arise. At times the music is still, compared to the visual imagery, or vice versa, tugging the spectator through the composition while transferring the balance of their sensory engagement. For a prolonged moment in *(x),* the granulated bell sound in the music is perceptually paired to the motion of the projected dancer as she pours water from her jug into the wooden bowl (example 30). The pace of both is well matched, and it is very hard to focus on any other movement that surrounds them. Finally, a meditation bell is heard, with no visual movement accompanying it in the projected video. The attention of the audience is broken, and they are suddenly able to perceive the wider narrative context in the visual imagery. Stars

and fractal shapes that have been slowly expanding onto the surrounding screens were barely discernible within the composition before the bells sounds. The sudden change in the audiovisual discourse allows the audience to adjust their gaze and appreciate the wider visual context.

Another, more complicated example detailing the relationship between audiovisual discourse and the sensory characterization of *Fear of Flight*'s narrative is found in *(iii),* the rhythmic pace of the composition is emphasized though musical envelope, visual variation, motion and light. The multiple strands of aural and visual motion all repeat themselves but do not quite synchronize, for instance: the lights behind the screens fall out of sync from the musical refrain. The bell sounds begin with a phrase in rhythm to the refrain and to the visual motion of the shadow characters, but later continue past the refrain. The composition is directed forward and even feels machinic, if disorganized. The audience is guided towards the next part of the section, but discrepancies in the rhythm force the audience to pay more attention as the scene develops, rather than less, to assimilate the material (example 1). In result, the experience of their engagement is lengthened. The opposing directives color the scene's temporal experience with a kind of haze that renders it unsettling and contributes to its emotional complexity.

Directly before *(iv) awakening*, a musical line filled with short rapid, stuttering sounds, begins. A bright strobe light, and loud, musical ostinato, layer over the stuttering sounds to create an overwhelming polyrhythmic sensory experience. The contrasting motion of the projected black bird-women and the

cast members, dancing in the stage area, compete, emphasizing two different scales of motion in the complicated musical discourse (example 6). Later, when the cast members leave the stage area and the dancer enters it, the scene moves through the eye of the storm. Though the music and light remain hectic, the video projections are replaced with slow-paced material; the frantic stage performance is replaced with the slow walk of a single body. The contrasting motion relaxes the tense mood of the scene but conditions the audience's increased sensitivity to the rapid speed of the strobe light (example 6).

Presence and Gesture

Fear of Flight's audiovisual media composition relies on the phenomenological, affective discourse that surrounds the perception of relative motion between the ocular and aural senses, as previously discussed in Chapters 2 and 4. In performance, the theatrical framework of the production heavily influences the perception of audiovisual dialog. To fully evaluate *Fear of Flight*'s composition, the production's media elements must be re-examined within the context of their theatrical engagement. The theatrical discourse surrounding the media shapes their reception, just as does their inter-sensory discourse.

Consider one again the audiovisual media of *(x).* The audiovisual movement that occurs in this section is not all of equal importance to the spectator. The depicted dancer is signified as a character within the production's theatrical discourse. Her motion holds much more importance than does the

sweeping expanse of sky around the projection space, even though that motion is much larger in scale. The deformations of her body emphasize the visual motion around her when they synchronize together. When they do not, however, the motion of her body remains visible while the competing motion is largely ignored. Confluences between the visual motion of the dancer's body and the music are significantly better perceived than confluences between the music and the other visual objects in the scene (example 30).

To illustrate how presence and attention shape the spectators perception of motion, consider a real world example in which a spectator listens to music in which a friend performed. While the spectator can't see their friend, the knowledge of their friend's involvement adds the presence of a subject to the experience of their listening. If they listen with awareness of the subject, their experience of the music is shaped around interactions with the subject and any motion that is associated with the subject is emphasized. The affect of *selective attention* shapes the perception of motion based on whether external motion is considered to be correlated with or pertinent to the source (Dishon Berkovitz and Algom 1437).

In *(x),* the motion in the dancer's depiction is primarily created through image manipulation. Its importance rests in the fact that the dancer is a strong participant in the production's theatrical discourse, and that her depiction maintains a complicated mix of presence in play, as well as its literal presence of motion and light. A further distinction can be made regarding presence and the perception of motion according to attribute. Motion that occurs from a depicted

body's gestures is different than if it is generated from distortions of the image plane. Such motion is perceptually reinforced through kinesthetic empathy.

In *(xix)*, the closest dancer's image has been subtly manipulated to reveal a blurred stream of colorful motion around her gestures while the depictions behind her have been more significantly abstracted. Their forms are depicted under spatial distortions that contribute to their motion. Although their depictions contain far more motion, and so create far more motion when projected large than does the closest, it is her form that draws the spectator's gaze. Her depicted body is more easily recognized and her physical gestures are clear, and elicit kinesthetic empathy to enhance their perception. The motion in the soundtrack is perceived in relation to her motion rather than that of the other figures (example 31).

Theatrical presence is able to shape spectatorial engagement across discursive modes of representation. To return to *(ii),* the dancer is portrayed on stage and in the video projections at the same time. She is portrayed in the projected video by both a fixed depiction and a manipulated real-time depiction derived from her portrayal on stage. While all three portrayals move in synchresis with the music, it is the dancer on stage with who the music seems best matched. Her physical motion is the clearest to the audience (example 17). More importantly, the complicated mechanisms of presence through which the dancer's video representations refer to her physical portrayal, favors its perceived importance.

The theatrical dialog of presence helps guide the spectator's attention through the production's media elements. It allows audiovisual representations to participate in the human perceptual dialog of empathy and subjectivity, as well as the phenomenological dialog of the senses. The conventions of theatricalization, and in the case of specific human representation, kinesthetic empathy, allows the projected media to function as more than anthropomorphized sound and color, but as performative characters who voice (constructed) agency within the context of the performance.

Porous Affect

The compositional dialog of *Fear of Flight* inherits from the structural and phenomenological audiovisual discourse of its media construction, as well as the theatrical discourse of its presentation and of its live performance. Spectators are forced to engage with its multiple elements simultaneously, applying their senses cross-modally to create a true intermedia dialog. While several modes of representation are used to portray the narrative elements in *Fear of Flight's* theatrical discourse, they are not transparent. The material portrayal of characters, objects, and places, informs their affective discourse within the narrative.

Consider again (v) *out of reach*, in which the flock of bird-women performs in the stage area, surrounded by depictions of themselves sitting in the trees. The affect of the bird-women must be read through at least two layers of representational discourse (a third can be argued when, for example, the musical

composition of the sequence is considered). It is shaped by the luminous presence of the video depictions, as well as the mirrored experience of the physical, kinesthetic motion of the performers on stage (figure 62a, 62). The result is an inter-animation between the two depictions of the bird-women, in which the perception of one informs the other through an indeterminate crossing of the medium-specific modes of sense perception in use by the spectator.

Expanded presence blends modes of sense perception across the rupture that occurs between modes of representation. To return to the end of *(xii)*, when the dancer on stage meets the projected procession, she is not the same dancer who approached it. Her presence is altered by her contact with the projected video medium through a kind of affective contamination (example 19). The dancer does not solely exist within the physical realm of the stage, having been perceived in part with the modes of sense perception enabled by the projected video. Instead, she shares a mutually enforced representational space that inherits attributes from each of its media territories. Her presence is perceived as being more than physical, at least within the window of memory.

Expanded presence blends modes of sense perception across time. The inter-animation between mediums lingers with their contact. This is true both in cases where the contact is obvious, and in cases where the contact occurs more subtly, such as when multiple mediums participate in the production of affect but don't share an easily discernible interaction.

In *(xv),* the flock's stage performance from *(v) out of reach* and *the flock* is recapitulated, depicted in the video projections through the window of the

spaceship. The image references the physical materiality of the supporting casts performance in Movement 2. Something more happens: the flock's stage performance from Movement 2 is informed in retrospect by the affective discourse of the video projection. The abstract compositional object referenced by both the physical performance of the flock in Movement 2, and the video projection of the flock in Movement 4, is situated within their mutual experience and both inform its perception (figure 63a, 63b).

The inter-medium affective discourse that takes place within *Fear of Flight* creates an unsettling aura around its characters. The audience utilizes a perceptual frame that has been widened by cross-modal sensory interplay to perceive them and to decode the subtleties of their performance. It is as if, along with each character on stage, ghost versions are present, manifested from within the different spheres of representation they have been represented and have had contact, informing every act. These ghosts, though not actually on stage, haunt each character's presence, so that their subtle communications are embodied within the performance, even while they themselves are not visible. In *Fear of Flight*, this haunting is an area of compositional construction.

Fear of Flight dynamically varies its medium-specific and inter-medium affective discourse by alternating the projected video and the physical presence of the performers within the narrative, to provide a sense of tension and release. Narrative dominance is attributed to the video, the dancer, and some blend between them as her live performance is projected on stage in Movement 1. It is primarily attributed to the stage performance while heavily colored through the

scenography and secondary character construction that occurs in Movement 2. In Movement 3, narrative dominance passes from the projected narrative to an encounter between the projected and the physical. In Movement 4 the narrative takes place solely in the video, but it again incorporates physical performance in Movement 5. In all of these situations the performers on stage function as a part of the narrative, but are informed to a greater or lesser extent by the affective pull of the video projections that surround them. The audience must engage multiple modes of sense perception to follow the narrative between different media. As the balance between modes of sense perception shifts, the tension produced transfers and is released.

Fear of Flight explores how different media inform each other through affective leakage and contamination, and through intermedial compositional structure. The piece participates in a lineage of performance that questions the perceptual characteristics of media and the draw that they exert upon each other. Compositionally, *Fear of Flight* demonstrates multiple ways in which the production of affect between media can evolve successively within a compositional structure to achieve strong aesthetic results.

CHAPTER 6: PRODUCTION DESIGN FOR *FEAR OF FLIGHT*

STAGE DESIGN

Fear of Flight makes use of a black box theatre with no raised performance space. The theater is partitioned into the shape of a 30 x 30 foot square using four large projection screens. Each screen is 14 feet high, and 20 feet wide. The screens are positioned in the center of each side of the square to build a stage area, leaving gaps in the corners at which performers can enter and exit the space, and where speakers are positioned. The audience is seated inside the stage area in two semi-circles surrounding a reserved central circle, over which hangs a changing assortment of aerial apparatus, tied out of view when not in use (figure 88a, 88b).

Four projectors are hung from a truss. The light cast by each projector passes through the central aerial rig, creating a dark shadow in the shape of any aerial apparatus and performance that is present there. The shadow is both larger and higher than its parent objects because of their distance from the screen and the angle of the projector's beam.

The space between the two semi-circles in which the audience is seated is reserved for live performance and performance traffic, as is the space that circles the audience between the walls of the theatre and their seating. All four of the

screens serve as projection surfaces during the performance and there is no specific orientation reserved for the audience. The audience members are expected to change their orientation and seating arrangements as appropriate to follow the performance and composition around them.

Fig 88a: Screens and Audience Area

Fig 88b: Aerial Apparatus and Suspension Harness Rig Points

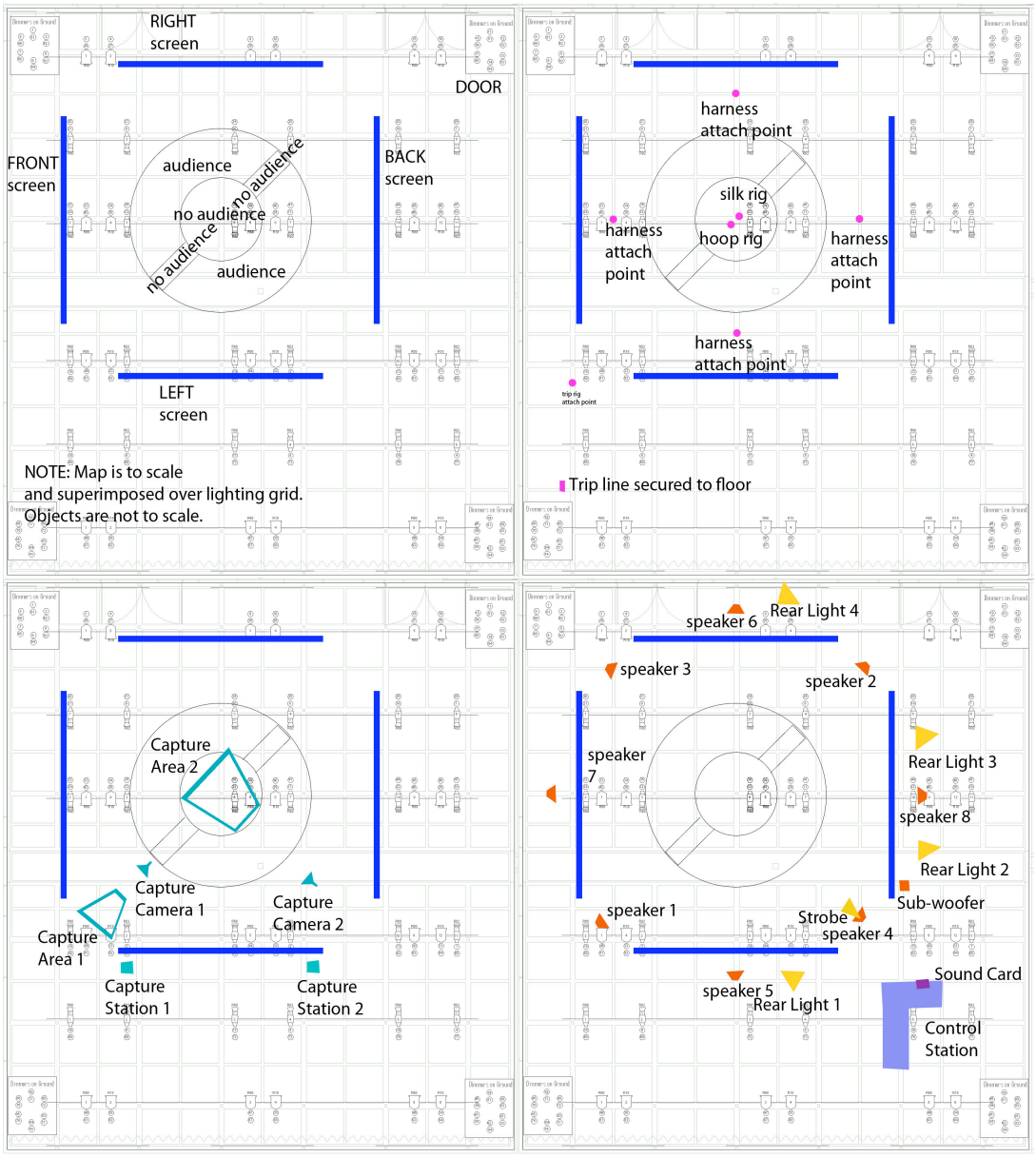


Fig 88c: Capture Areas and Equipment

Fig 88d: Lighting, Speakers, and Audio Equipment

Mounted camera equipment are positioned on stage to face the aerial apparatus during *(vi)* and *(xxiii),* and to face the front left corner of the stage space during *(ii)* (figure 88c). Dangling pieces of rope, tied off in loops, fall between the audience and each of the four screens that comprise the projection space during Movement 5, and otherwise tucked out of the way against the corners of the screens (figure 88b).

Four speakers are positioned on poles in the outer corners of the stage area. An additional four speakers are positioned outside the stage area with one speaker behind the center of each screen. A subwoofer is positioned behind the left side of the screen at the back of the stage area. All of the speakers are connected to the sound card that is part of the production's performance system located outside the back left corner of the stage area (figure 88d).

Four Fresnel lights are attached to lighting trees and positioned behind the back, left and right screens in the theater. The lights are raised to chest height in the right half of the left screen, the left half of the right screen, and the left and right halves of the back screen. A single strobe light is hung on a lighting tree in the back-left corner of the performance space, just over the speaker (figure 88d). Appendix 2 shows a complete diagram of the stage design.

THE SURROUND PROJECTION SPECIFICATION

All of the fixed video for *Fear of Flight* was rendered in the same format. I based my calculations on the 20 x 14 feet screen created by binding two 14 x 10 feet Fastfold screens together placed on their sides (figure 89). These

measurements were slightly off because of the trim around the screens that doubled in the center, forming a long black seam running vertically down the middle of each projection surface I covered with a strip of similarly colored material. Three sets of fast folds, those used in the back and sides of the projection space, were rear projection screens in order to create the shadows in *(iii)*. The front screen of the projection space was created using forward projection screens, giving it the best image quality. In result, the front screen was favored in playback for the most complex visual imagery.

Fig 89: A Projection Screen

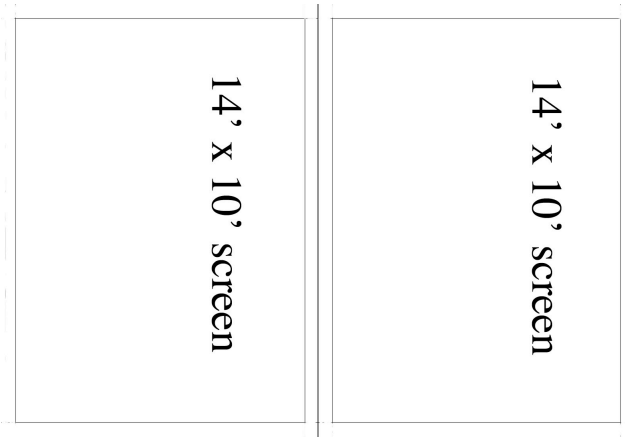
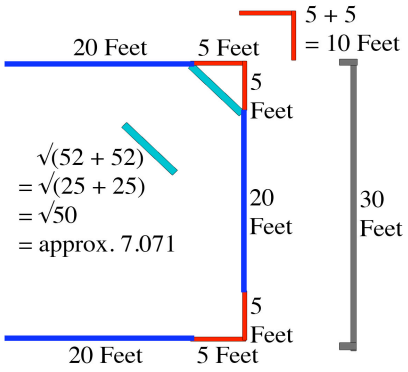


Fig 90: The Distance between Screens



The largest pixel size that the projectors could handle natively was 1600 x 1200, so I decided to render each of my frames to that size, favoring the inclusion of the entire horizontal image rather than the entire vertical image. I used the calculation of 1600 pixels / 20 horizontal feet = 80 pixels per horizontal foot. Keeping the same ratio: 80 pixels x 14 vertical feet = 1120 pixels. I composed my video to 1600 x 1120 pixels and included a 40-pixel border above and below my image in order to fill a 1600 x 1200 frame size for accurate projection.

In order to compose for a surround video environment, I needed to make a decision about how to treat the empty space between the projection screens. I decided against treating the four screens as if they were contiguous, as that would ignore the empty space beside the screens and create holes in the image whenever something traveled from one screen to the other. Instead, I decided that objects should simply disappear between screens if they traveled in between them in order to accurately reflect three-dimensional space. This decision left me with another: how would the distance between the sides of the screens be represented? Would objects travel in the path of a corner, a curve, or would they take the shortest route before they reappeared? To decide, I created some visual tests based on the following calculations.

30 feet (one side) = 5 feet + 20 feet (screen) + 5 feet

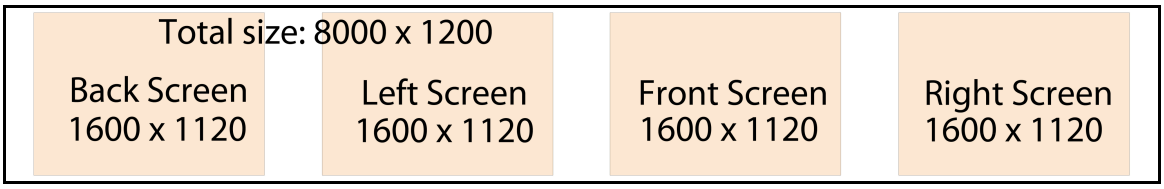
So, multiplying by 80 pixels / foot:

2400 pixels (one side) = 400 pixels +1600 pixels (screen) + 400 pixels

If an object traced the path of the square stage space, it would need to travel the distance of 800 pixels = 400 pixels + 400 pixels between screens. Using the Pythagorean theorem, the shortest path between the ends of the two screens would be a straight line of length: $\sqrt{(5^2 + 5^2)} = \sqrt{(25 + 25)} = \sqrt{50}$ = approx. 7.071 feet or 7.071 * 80 = 565.68 pixels of distance (figure 90). Any reasonable curved path between the two screens would be somewhere between these two values. Using trial and error, I discovered that the pause between an object disappearing off one screen, and reappearing on another seemed to large when I

used accurate values. Instead, I distorted the depiction of space outside of the screens, representing it with only 400 pixels.

Fig 91: The Render Specification for the Surround Video



In order to compose video for the four screens I created compositions in Adobe's After Effects of 8000 * 1200 pixels. The top layer of each of these compositions was always a mask that covered 200 pixels on either side of each area representing a projection screen and 40 pixels above and below the entire image. Although painful to render, depicting the entire space at once allowed me to visualize movement between the four screens and to give a consistent depiction of space between them. After rendering each large composition, I extracted four 1600 x 1200 pixel windows from within corresponding to the projection images of the four screens (figure 91).

THE SURROUND AUDIO SPECIFICATION

The soundtrack for *Fear of Flight* exists in 2 versions, the first in stereo, and the second in 8 channels. Each was implemented for comparison over successive April 2012 performances. In the first version 4 speakers are used, placed in the empty corners between screens. The soundtrack is represented as a single stereo file, sent to the speakers in an alternating array of left and right

channel (figure 92a). In the second, 8 speakers are used for independent channel playback placed both in the corners between the screens, and behind the middle of each screen (figure 92b).

Fig 92a: The quadraphonic surround audio specification uses one stereo file.

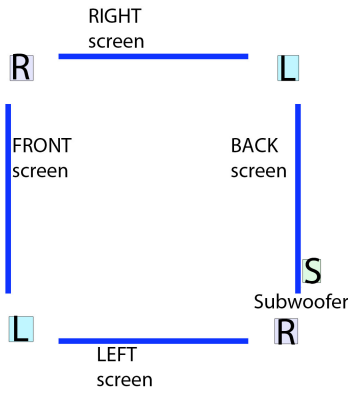
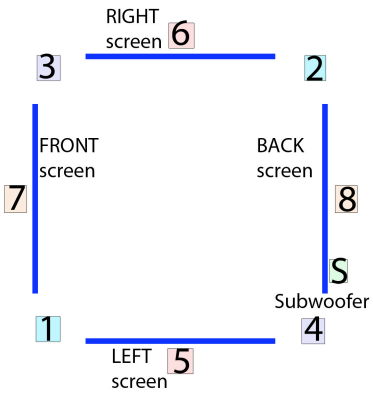


Fig 92b: The octophonic surround audio specification uses four stereo files.



The audio is represented as 4 stereo files corresponding to pairs of speakers located directly across the performance space. In both cases, all channels are routed through a subwoofer with cutoff frequency of 80 Hz. Using only two channels of sound, repeated across the four speakers offers the audience a similar aural experience no matter where they are seated within the theater space. By contrast, the eight channel version of the piece offers better sound separation, and localization to the audience, and puts more focus on audio as part of the surround performance experience. The subwoofer is placed on the ground behind the back screen, as bass is difficult to localize.

LIGHTING DESIGN

The lighting design for *Fear of Flight* makes use of the video projections surrounding the performance space as well specific stage lights including gels, gobos[27], and barn doors[28], attached to a grid overhead. The lighting design arose in collaboration between Freida Abtan and Andrea Joy Rideout, with Abtan designing and adjusting the video projections to create ambient light and intersect key moments of the performance and Rideout implementing solutions for the situations on stage too dark to perceive without additional light. A complete description of lighting cues is included as Appendix 3.

Video Light

There are three main ways that video contributes to the lighting design of *Fear of Flight*: as ambient lighting, through interruption, or through displayed projection. These three principles of illumination do not necessarily happen discretely. Together they create as many different lighting situations as there are confluences between projection and performer. Rather than describe each unique situation, I will describe the principles and give examples of how they occur in the performance.

The projectors used in *Fear of Flight* must have very bright image quality for their projections to be visible on stage under the total combined ambient light they produce. The situation is made increasingly difficult when stage lights are

[27] A physical template placed in front of lamp's beam to control its shape (Sayer).

[28] An attachment with four leaves that fits onto the front of stage lights. The leaves can be individually closed to block the beam and stop it from scattering (Blender).

introduced, further drowning out the image projection. To control the ambient light on stage, it is also necessary for the projectors to produce an image with high contrast. The performances used four matched Panasonic PY-DW5100U projectors with 5500 ANSI lumens of brightness and a 2000:1 contrast ratio. The brightness and contrast were sufficient, not only for the projections to remain visible under the many different lighting scenarios used on stage, but also to maintain a relative sense of darkness when no video image or stage lights were in use. *Fear of Flight*'s stage area is never completely dark because of the small amount of ambient light introduced by its four projectors, even when projecting a blank, black image.

Fig 93a: The ambient light from the video is colored yellow (M2 01:52).

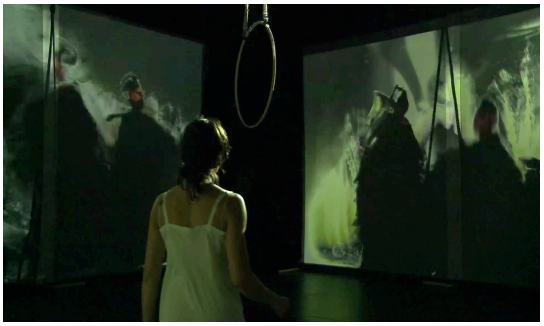


Fig 93b: The ambient light from the white projections is very bright (M5 11:00).

In the beginning section of Movement 2, the dancer moves to a corner of the stage area where she is not interrupting the video projections. She is still dimly visible because the small amount of ambient light that extends from the video projections reaches the corner where she is standing. Later, she walks into the stage area lit by a rapid strobe effect. When the strobe is turned off, she remains visible, lit in a sickly yellow color due to the ambient light of the video (figure 93a). Compare the lighting situations at the beginning of Movement 2 with

that at the end of Movement 5. As the four screens fill with images of white feathers, the ambient light their projection generates begins to increase. In climax, the video is composed of high-luminosity pixel values and its projection creates a very bright ambient light that fills the entire stage area. As the dancer falls beyond the projector beams, she remains quite visible, due to the ambient glow (figure 93b).

Fig 94a: Her shadow becomes visible against the projected moon (M3 00:06).

Fig 94b: The dancer is revealed by what video her form obscures (M3 10:53)

Fig 95a: The cage falls on the dancer's chest as well as around her (M2 14:22).

Fig 95b: The bird-woman serves as her own projection surface (M5 09:08).

The locations of *Fear of Flight*'s projectors contribute to its lighting design. All four of the projectors' beams intersect with the work's aerial performance at approximately mid-length, creating strong shadows on the lower half of the projection screens that are roughly to scale. The center of the stage area does not interrupt the projections at floor level, casting no depictions of the audience in

shadow. As performers approach the screens, more of their upper body blocks the projection light, creating partial shadows along the bottom of the screens. The performers shadows reveal their movements and allow their actions to be seen in strong relief against the production's video imagery.

Video interruption is an important lighting technique in *Fear of Flight*. For instance, many scenes of the production incorporate the shadows of the performers within their video imagery. In Movement 3, the moon traces a path across several screens that surround the performance area. The dancer's shadow is visible, projected against the moon's image for most of its journey. The audience is made continuously aware of her presence on stage through her shadow's interaction with the video (figure 94a). Using the brightness of video to create contrast is almost as effective as using shadows to reveal the performer. In these lighting situations, the performer is not lit or is only dimly lit and appears as a dark body on stage, blocking the light of the video that can be seen on the screen behind them. When the dancer first descends from the aerial hoop in Movement 3, her outline is revealed to those behind her by the bright video image she obscures (figure 94b).

A consequence of projected video being interrupted by a performer is that its image appears displayed upon the performer's body, revealing the body underneath. Lighting situations that incorporate video projections directly on performers can make use of the imagery displayed to inform the emotional or narrative impact of the performance. At the end of Movement 2, the dancer's hangs quite high on her hoop, where her body interrupts the video that surrounds

her. As her flight finishes, she is covered with forest imagery. But, when the forest becomes a birdcage the wires appear across her chest as well as around her. Both the bars and the forest detail illuminate her body even as they inform her movements (figure 95a). Another example of this important technique occurs in Movement 5 when projected video is displayed directly upon the bodies of the four bird-women suspended between the screens and the audience in order to illuminate them. The bird-women serve as screens for images of themselves, dressed in nightclothes and white-feathered cloaks, dancing freely (figure 95b). Over the course of this section, the projected images of the bird-women turn into bodies made of stars. The shift in imagery not only changes the illumination of the performers, it changes the narrative interaction between the performers and the video. The bird-women have entered the sky as constellations.

COSTUME DESIGN

The costumes for Fear of Flight invoke birds and sleeping to re-enforce the work's narrative of dreams and transformation. The nightclothes worn by the cast include white camisole tops, half-slips and shorts. Feathered cloaks are used to invoke the shapes of birds while maintaining the human forms of the dancers wearing them. Throughout the piece the characters change the colors of their cloaks for visual and dramatic affect. In total, *Fear of Flight* incorporates seven feathered cloaks, one black, one peacock-feathered, and five of which are white with optional peacock feather detail. For most of the performance, the lead

wears a long white slip and flesh colored bodysuit underneath. In addition to their nightclothes, the four other cast members wear black long-sleeved shirts and pants in Movement 2. The original costume design for *Fear of Flight* was conceived by Freida Abtan and refined over several iterations. The final cloak's used in performance were designed by Emily Comeau and created with the help of Jasa Baka.

Fig 96a: The Black Feather Cloak

Fig 96b: The black feather cloak is used in Movement 2's video (M2 01:52).

The first feathered cloak produced was the black one in winter 2009. It was constructed from 3 lbs of dyed black turkey feathers, for a production called, *bird woman*, the pre-curser to *Fear of Flight*. The cloak was constructed from a 9' x 5' piece of black polyester fabric, punctured with hundreds of holes through which feathers were threaded and glued into place, in a vertical fall (figure 96a). Its throw is wide; resembling a rectangle who's corner have been cut on a curve. It is lined unsuccessfully with a simple cotton fabric, and had straps made of fabric to attach around the performer's neck, wrists, and arms. The cloak produces a beautiful flapping noise when it moves and travels with a fluid motion through the air. Although beautiful, it is difficult to work with in both video production and live performance. The dark feathers can only be differentiated

when they are reflecting light, limiting their potential for aesthetic transformation. They shine in light to dramatic effect, but only hold high-contrast white projection. Worse, the cloak's awkward construction allows the feather stems to rub against the wearer's body and the cloak suffered significant loss of feathers during every rehearsal for which it was used. It was too heavy and hot to dance in for long periods of time.

Although the black cloak was not fit for *Fear of Flight*'s stage production, it appears in the video during Movement 2. Specifically, it is the cloak worn by the black bird-creatures during Movement 2's strobe section (figure 96b) and in Movement 4 through one of the spaceship's windows. The cloak was also used to generate the shadow forms of the bird-women featured in Movement 2 because of its luxurious full shape. Although more video initially featured the black cloak, it did not make into the final cut of the production materials.

The second cloak was created from peacock feathers over the winter of 2010, using a thinner, black fabric for its body and the same construction technique. The peacock cloak was cut and feathered on the round to create a better shape (figure 97a). The experiment was deemed unsuccessful because although it looked more bird-like in repose, the shape did not lend itself as well to the flapping motions of performance. In addition, although the slight weight of the peacock feathers resulted in a finished cloak that was much easier for a performer to wear and manipulate, it could not reproduce the sweeping movements of the first and was limited both by its reduced weight and the inwards curve of the feathers necessary to show their colors.

The thin fabric selected for the cloak's construction could not stand up to the strains of performance; it ripped and needed re-enforcement after the first video shoot. Although unsuitable for dance, the cloak was used extensively in the work's video production. The eyes of the peacock feathers helped to visually separate their individual forms, while their colors inspired the aesthetic manipulation and chroma treatment of the video. In Movement 2 the four bird-women all appear dressed in the peacock feather cloak, sitting in the branches of trees within the video projections. The image is repeated in Movement 4 through one of the spaceship's windows. Also in Movement 2, the four women are depicted in their nightclothes, camisoles and slips, each spread out on the peacock-feather cloak as if dreaming. In Movements 3 the dancer is portrayed in the video projections wearing the cloak, climbing a ladder and reaching for the moon (figure 97b). She sits on the peacock feather clock as if at a picnic and pours the sky from a jug of water. Later, she appears at the head of a dream procession again wearing the cloak. In Movement 5, she can be seen through the spaceship's windows several times, both wearing the cloak and dancing with it spread out before her.

The final cloaks created for performance benefited from the construction errors of the first two. The white cloaks each incorporate approximately two pounds of turkey feathers and a light polyester blend weave fabric durable enough not to tear. The white cloaks are smaller and lighter than the black one, but resemble it in shape and movement. Their color makes them highly visible in low stage light as well as able to serve as makeshift screens for video projection.

The reduced load of feathers in each lowers their material costs, while their lighter weight and better construction increases their suitability for dance. The cloaks incorporate separate peacock feather collars for dramatic visual accent. The collars were designed by Emily Comeau, a Montreal textile artist, whose sewing technique gave them maximal lift and depth. She also re-designed the cloaks, introducing sewn pockets for each feather with surface area for the glue, and a more tailored shape, as well as better restraints and fasteners. Her design insulates the wearer against stems and ensures a full range of movement.

Fig 97a: The Peacock Feather Cloak

Fig 97b: The dancer wears the peacock feather cloak in the video (M3 0:44).

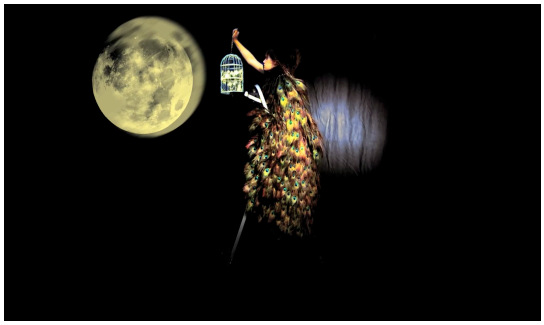


Fig 98: The dancer dons the white-feather cloak to join the flock (M2 06:51).

Fig 99: The collar provides continuity to the dancer's costumes (M2 10:19).

The white feather cloaks and peacock-feathered collars are used by the cast in Movement 2 and by the dancer, who dons the costume in order to join the bird-women's flock (figure 98). The cast wears the cloaks over the black shirts

and pants they were previously dancing in, while the lead keeps her flesh colored body suit and white slip underneath. Before she lifts herself onto the hoop, she discards her cloak, keeping her collar for accent and visual continuity (figure 99). Her cloak is passed to her briefly while she is in the air to demonstrate her bird form. In Movement 5, the cloaks are worn with white camisoles and shorts[29] and without peacock-feathered collars on top. The costumes underneath their cloaks match those of their depictions in the video projections, who float by in bubbles wearing nightclothes: camisoles and half-slips, and later wear their cloaks overtop. Without collars, the white forms of the bird-women reference angel iconography and better hold video projections.

THE PERFORMANCE SYSTEM

The performance system's video processing and playback is distributed across four computers, running isolated processes and connected directly to reserved playback hardware. Video that is captured from the performance in real-time is routed to each computer over the network. One computer sends cue information to the entire system through the Open Sound Control[30] (OSC) protocol to specify how it functions at any given time. It also controls the system's sound playback, timing, and lighting. The performance system's operation is

[29] The shorts are necessary for the suspension harness performance, in which the suspended performers fall sideways and hang upside down.

[30] Open Sound Control is popular format for sending messages over a computer. Externals for Max are published online in the CNMAT repository at http://archive.cnmat.berkeley.edu/OpenSoundControl/.

broken down into six distinct software functions: production control, video capture, image processing, video playback, sound, and lighting. I will refer to the implementation of each of these functions as a layer in the system architecture.

Design Decisions

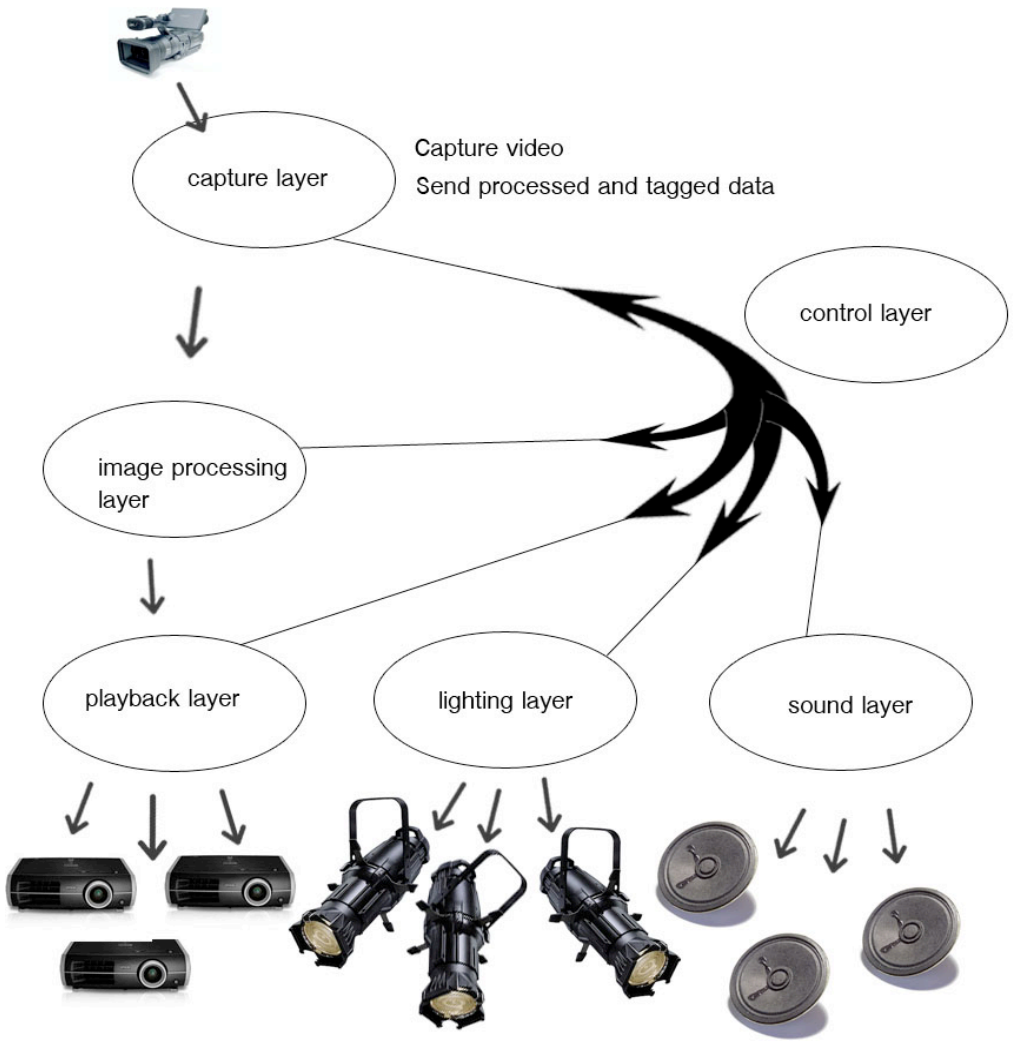
The performance system's implementation takes advantage of the fact that many of its necessary tasks can function independently as long as they have access to shared data over a network. The specific hardware implementation of a software layer is referred to as its node[31] in the network. There are many advantages to splitting up the performance system between independent network nodes. Each node can be abstracted and can be tested independently. It can be re-assigned to different hardware based on resource requirements and availability. It can be scaled and redesigned for future iterations of the performance. Strict temporal synchronization is difficult to achieve in this model, however, it is not necessary at all points within the performance system. Instead, each node's operation takes place by sampling the most recent data that is available on the network at the time of collection. Although this technique may introduce small synchronization issues between media or media and performer, it helps to manage the temporal lag that is inherent in sequential, resource intensive, data processing.

[31] For instance, if four machines act together to implement one function they serve as a node. If two separate functions are implemented on one machine, that machine serves as two nodes of the network, as do two machines that implement the same functionality independently.

Network Topology

The performance system's network topology assumes that each node will have access to data that is on the network in a shared namespace. The network flow diagram below (figure 100) explains the topology of the network structure,

Fig 100: The Network Flow Diagram



but does not specify whether layers are implemented on distinct machines, or indeed by a cluster. Future iterations of the production may incorporate further responsive technologies or different surround projection design. The network flow

diagram is flexible enough to incorporate additional software layers while not precluding changes to the system's hardware implementation.

Fig 101: Node Implementation by machine

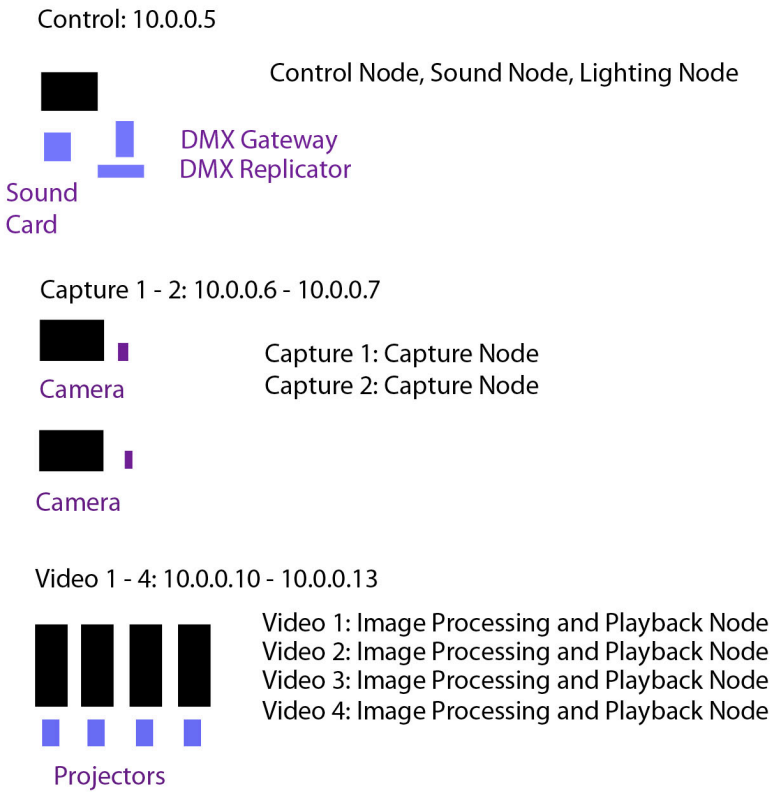


Figure 101 demonstrates the physical organization of the network by hardware implementation and network address. The control, sound, and lighting layers are implemented on a single computer, while image processing and video playback are implemented across four independent ones. Individual capture nodes make use of separate computers for greater mobility.

The Control Layer

The control layer is implemented as a single node in the network. It functions as an event state machine, responsible for the arrangement and timing of the various sections of the production. It also generates control variables that other layers can read to direct the behavior of their operation. A snapshot of the control patch can be seen on page 1 of Appendix 5.

Each movement's sound, video, and lighting are controlled by specific start and stop cues originating in the control layer. When the movement to be run is first selected, a cue is sent to the playback, lighting, and sound nodes to load their media and initialize. There is a necessary delay before the movement can start, as each playback node must load its video completely to ensure proper synchronization on start. Once each playback machine has loaded its fixed video for the movement, a start command cues playback. Control layer commands are directed to port 1201 of all machines on the network.

The control layer sends cues to start and stop the media for each movement including video, sound, and lights. The playback cues can be automated, but in practice this is not a good idea since each performance varies in length of set changes and strikes between movements. The physical performance of the characters on stage also varies sufficiently to necessitate some fluidity in the timing of control cues. While automated cues are inadequate to control events that rely on the performance, such as capture camera and real-time video, they are necessary for behaviors that shape the events on stage to help them synchronize with the sound or video. During a run, all control cues are specified by a seated operator in response to the timing of the performance with

the exception of tightly controlled lighting cues. A sub-patch in the control layer times commands sent to the lighting layer after each movement begins (page 1 of Appendix 5).

The Capture Layer

The capture layer is comprised of two independent nodes that capture live video feeds from attached Firewire cameras. Each node re-orients the video it captures, and encodes it for transmission over the network [32]. After receiving an OSC command from the control machine of the form <capture_node_id playback_node_id>, the specified node closes any active connections with other playback nodes, opens a connection with the specified playback node and sends the encoded video over the network to its destination address. A snapshot of a capture node's implementation can be seen on page 2 of Appendix 5.

The performance system can be easily scaled to incorporate more or less capture nodes for future performances. The number used is a function of the production's staging and the system's optimization. Capture nodes are purposefully implemented on reserved individual computers. Their software is optimized to execute efficiently and to not tax the computer's CPU. The small thumbprint of their workload ensures that no frames are dropped during video encoding, and a substantial frame rate is maintained during transmission. Three camera setups were used at two opposing ends of the theater for live capture.

[32] Michael Fortin adapted the H264 codec encoder/decoder Max external objects used in fear of flight from software published by Google under an open source license.

Using a distinct setup for each capture location that could be repurposed between scenes was easier and more efficient then reconfiguring a single camera setup during the performance. Figure 2b demonstrates the two capture setups. One setup was repurposed in performance between scenes in movements 2 and 5.

The Image Processing Layer

The image-processing layer consists of four independent nodes that are paired with specific playback nodes and implemented on their hardware. On each machine, the playback node passes video to an internal port for processing by the image-processing node and receives the resulting video. Two possible image-processing instruments can be applied either independently or sequentially: the temporal feedback instrument or the luma displacement instrument. Both instruments are consistent with the spatial and temporal remapping strategies displayed within the piece's pre-rendered video to maintain visual integrity. They respond to directions from the control layer as well as to real-time user intervention. Snapshots of an image-processing node's implementation, as well as that of the video instruments, can be seen on page 3 of Appendix 5.

The temporal feedback instrument consists of a temporal slide Open.gl shader called tp.slide.jxs[33] loaded within a jit.gl.slab object. The temporal slide produces a weighted average of values for each cell within a short temporal

[33] tp.slide.jxs is included as part of the Max install in the jitter/shader examples.

window that privileges values closer to the present[34]. It takes two parameters, slide_up and slide_down, that control the amplitude of the data in regards to brightness of the color channel[35]. The visual result offers trails of movement extending from either the brightest or darkest pixels in the frame that connect past events and locations towards the present ones. The temporal feedback instrument further emphasizes this effect by creating a feedback loop between the process result and input, privileging pixel values that are maintained over successive frame: the areas in which movement has occurred. Figures 102a and 102b compare the result of video processed through the temporal feedback instrument, using two different settings of the instrument. Note how increasing the slide_up parameter seems to privileges dark values and the present, while increasing the slide_down parameter privileges bright values from the past.

The luma displacement instrument makes use of another Open.gl shader loaded into a jit.slab object called td.lumadisplace.jxs[36]. The shader implements luma displacement, a technique by which each pixel of a video frame is displaced in two dimensions according to its luminosity. The instrument takes four parameters, x and y amplitude and offset. The amplitude parameters control the scale of the displacement in each dimension, while the offset ones increase it by a specific amount with the effect of distancing the displacement map from its own

[34] A temporal slide is a cellwise temporal envelope follower implemented by the formula y(n) = y (n-1) + ((x (n) – y(n-1))/ slide).

[35] Max 5 Documentation, jit.slide Reference.

[36] td.lumadisplace.jxs is included as part of the Max install in the jitter/shader examples

image. Figures 103a and 103b shows the result of video processed through the luma displacement instrument, on two different settings.

Fig 102a: The slide_up parameter privileges current bright values

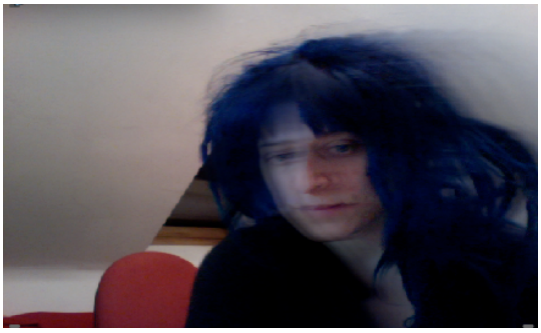
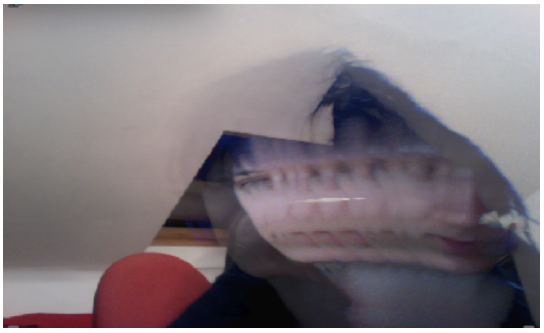


Fig 102b: The slide_down parameter privileges past bright values.



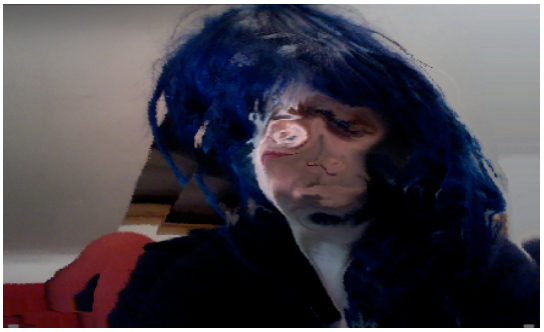


Fig 103a: The amplitude parameter controls the scale of the displacement.

Fig 103b: The offset parameter separates the video from the displacement mask.

The Playback Layer

Four nodes are used to implement the playback layer of the performance system. Each node is responsible for the video that is projected to a single screen on stage and is implemented using one projector and one computer connected to the system network. The computer runs two separate instances of max. Together, they receive real-time video off the network, dispatch it for processing, and then receive it to composite against the correct fixed video according to commands from the control layer.

The first instance of Max that runs in each node maintains and switches connections with the capture layer, decodes video off the network, and dispatches it for processing according to the control layer's requests. This code specifically must run in its own instance of Max to preserve the encoder/decoder pair temporal relationship for the video that is being streamed. If it is implemented in the same instance of Max as the rest of the playback layer and the image processing layer it becomes unreliable and adds visual glitches to the real-time video received off the network.

The second instance responds to commands from the control layer to load fixed video for playback, to start or stop playback or to jump to specific frames for rehearsal. It also composites video it retrieves from the image-processing layer on top of the fixed video it is playing according to the control layer's direction. Because the image-processing layer is implemented as a second max patch open in the same instance, the video is transferred using a jit.send object. Snapshots of both patches used to implement a playback node can be seen on page 3 of Appendix 5.

The Sound Layer

The sound layer is implemented as a single node comprising of software and a reserved audio card connected to the system speakers and a subwoofer. Under direction from the control layer, the sound layer starts, stops, and jumps to specific points within the fixed audio files corresponding to each of the piece's five movements. As explained in the surround specification section, there are two

different implementations of the sound layer. The first uses eight mono channels represented as four stereo files per movement that must be synchronized for playback. The second alternates the left and right channels of a single stereo file to four speakers. A snapshot of the sound layer implementation can be seen on page 1 of Appendix 5.

The Lighting Layer

The lighting layer is implemented as a single node in the performance system. All of the lighting cues[37] are programmed as states, to be triggered directly by a live operator or through commands from the control layer. In performance, the control system automates calls to the lighting layer to create complex synchronization with the other production media. There are two layers of abstraction involved in this process. The states specify the total behaviors of the lighting system to be used and re-used in the performance; however, they are implemented as presets that address the individual controls for the lights used by the production. Page 1 of Appendix 5 shows the max patch that implements the lighting states used in *Fear of Flight*. Note the descriptions that refer to the work's lighting design. Page 2 of Appendix 5 shows the individual control for the lights that can be used for testing or rehearsal.

The computer upon which the lighting layer is implemented sends commands to a DMX Ethernet gateway[38] via the performance network, whose

[37] A detailed description of each lighting cue is included as Appendix 2.

[38] A DMX Ethernet gateway is a reserved piece of control hardware that sits at a fixed IP address and translates between commands it receives over the

output is doubled through a DMX signal repeater. The first of the two resulting signals is connected to a single powerful strobe light, hung in a corner of the performance space. The DMX Ethernet gateway[39] resides at a reserved network address and accepts DMX commands formatted in the Art-Net[40] protocol. The performance system uses open-source software[41] to initialize and manage the commands it sends to the gateway. It uses dimmer address as index to generate a long string of values between 0 and 255 that specify the brightness of each light connected to the hub. A series of four consecutive addresses, not assigned to any dimmer connected to the hub and configured directly in the hardware, are reserved for the strobe light's function. The values of the series are interpreted as strobe speed, brightness, and on and off.

Transmission Bottlenecks

Fear of Flight relies on the ability to send high-quality video data, as well as control data, over a local area network. The performance system network was designed to send real-time captured video to each of the playback machines

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network and DMX512 protocol signals used to control lighting and other stage hardware. It has ports to connect to both female and male DMX cables in order to both send and receive signals.

[39] The April 2012 production used an ENTTEC ODE, or Open DMX Ethernet, gateway.

[40] Art-Net is a protocol that organizes DMX commands into ID universes in order to expand the range of addresses that can be in use over a single DMX network (Specification for the Art-Net mx Ethernet Communication Standard).

[41] *fear of flight* uses the imp.dmx Max software patches released under the creative commons license by David Butler for dealing with DMX data. The patches are released through his website, "The Impersonal Stereo".

simultaneously, for display on each screen, or to be animated across them. Unfortunately, several transmission bottlenecks were introduced by the performance system's implementation using Max/Jitter's network transmission objects.

The jit.net.receive object can take the parameter "ANY" to receive connections from any IP address on the network that connects to the local host at the specified port. Its partner object jit.net.send is unable, however, to send data to multiple addresses at the same time. A unique network connection object and individual copy of the data is necessary for each receiving IP address over the network, multiplying the necessary bandwidth for transmission by the number of connections to maintain.

Uncompressed and at full temporal resolution, a single steam of 640 x 480 video data would monopolize the available bandwidth of a 1 GigE network[42], leaving no room for the transmission of other network traffic such as playback commands. The video data size issue is resolved by using external objects[43] programmed to respect a target bandwidth allocation when compressing and decompressing video. Using the H264 codec for video compression, the externals can encode a 30 fps stream of real-time video data to take only a small

[42] The number of bytes that must be transmitted per second of uncompressed 640 x 480 ARGB video running at 30 fps is at minimum 4 * 640 * 480 * 30 = 36864000 bytes or 8 * 36864000 = 294912000 bits, more than the 1073741824 bits / second that can be transmitted over a 1 GB Ethernet network. In reality, even more bandwidth is necessary due to the cross communication overhead of the transmission protocol.

[43] See footnote 19.

fraction of the network's available bandwidth without introducing any significant lag to its transmission over the performance network.

Using the compression/decompression externals, Max should be able to transmit many simultaneous 640 x 480 video streams over a 1 GB Ethernet network, however, further tests revealed the Max network objects to be unreliable when instantiated more than once. Only one jit.net.send object could maintain an active connection within a single instance of Max. Worse, tests to switch between multiple connection objects or to switch the active connections of a single object were equally unreliable. Even the most basic connection management in a single instance of Max introduced potential network panic. Only a single transmission connection was maintained between the video capture machines and the playback machines. Real-time captured video was displayed on the front screen. In future performances, the system will be re-implemented with a different method of data transmission to fully make use of the surround projection setup in real-time.

CONCLUSION

In the introduction, I stated that multimedia performance "is a hybrid practice that inherits from many different artistic traditions and modes of discourse. It is performance that makes use of media technologies in such a way as to be an integral and significant part of the production's content" (1). As such, multimedia performance turns practices relating to media technologies, towards the constructions of events that can be engaged with through the lens of both theatricality and composition. The multiple ways that multimedia performance engages with theatrical and compositional discourse defines a production as much as its narrative or aesthetic content.

Fear of Flight makes use of multiple modes of representation to portray its characters. The production is composed to include inter-sensory gestures whose affect is shaped by the mode of representation over which they are voiced. The theatrical dialog of presence helps guide the spectator's attention through the production's media elements. It allows audiovisual representations to participate in the human perceptual dialog of empathy and subjectivity, as well as the phenomenological dialog of the senses. The conventions of theatricalization, and in the case of specific human representation, kinesthetic empathy, allows the projected media to function as more than anthropomorphized sound and color, but as performative characters who voice (constructed) agency within the context of the performance.

The compositional dialog of *Fear of Flight* inherits from the structural and phenomenological audiovisual discourse of its media construction, as well as the theatrical discourse of its presentation using live and pre-recorded performance. Spectators are forced to engage with its multiple elements simultaneously, applying their senses cross-modally to create a true intermedia dialog. While several modes of representation are used to portray the narrative elements within the production's theatrical discourse, they are not transparent. The material portrayal of characters, objects, and places, informs their affective discourse within the narrative.

The production explores how different media inform each other through affective leakage and contamination, and through intermedial compositional structure. The piece participates in a lineage of performance that questions the perceptual characteristics of media and the draw that they exert upon each other. Compositionally, *Fear of Flight* demonstrates multiple ways in which the production of affect between media can evolve successively within a compositional structure to achieve strong aesthetic results.

Two major parts of *Fear of Flight's* original design were abandoned in the production in the rush to finish it. The first incorporated a camera-based motion-tracking system that analyzed the lead's aerial performance from above, and responsive sound and video instruments that were controlled by the analysis in the second and fifth movement. My implementation relied on the ability to send a live stream of video to all four playback nodes in the network simultaneously. I simplified the piece for the production after experiencing network panic on

multiple occasions. The second abandoned part of the production design involved a software implementation for continuous spatial compositing between the four screens that defined the production's surround projection space. While I was able to get a simple system for control functioning, it became less relevant to the performance after I stripped down the work's reactive elements.

I fundamentally abandoned large portions of the technology design associated with the production, not because they were impossible to implement, but because the development of the work's production materials and composition required significant revision after being staged in the theatre space. Similarly, the reactive elements I had created needed more development in the correct context to appear sufficiently polished. My hope is to restage the production with a different solution for passing video over the network and with more reactive elements in the future. The production now has a significantly developed compositional structure and discourse, and will be able to serve as a platform for the development of further research into reactive composition systems.

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GLOSSARY

Affect and Effect

Both the terms *affect* and *effec*t are used in this paper. An affect brings about a change in psychological or cognitive state. It is different than an effect that is the result of a process. The subject matter of this paper is such that many of the effects that I discuss are also affects. To complicate matters, both words can be used as verbs or nouns. I generally use the word *effect* when I am describing a perceptual result and the word *affect* when I am describing the way that result is communicated in perception.

Inter-sensory, Intermedia, Audiovisual, Multimedia, Bird-woman

I have chosen to present certain combined concepts as a single, non-hyphenated, object only if their integration denotes a concept larger than their combined scope. I have only observed this convention where a common standard has not been adopted for the spelling of the word.

Liveness and 'Liveness'

I use 'liveness' to discuss a constructed temporal quality of media presentation as defined by Phillip Auslander. The word liveness describes an actual state of being within shared time and space. Note that Auslander does not

use any marks to distinguish these concepts and so I do not distinguish them in his text when I quote it.

Mediatized and Mediated

Among other definitions, to mediate means to bring about by way of an intermediary. In the try I use the word mediatize when discussing media representation as intermediary. All performance is mediated, and so another term is necessary to differentiate the intermediary of media representation that stands in for performance.

Multimedia and Intermedia

The term intermedia refers to artwork whose aesthetic sensibility not only combines media but also necessarily intersects them. Multimedia is a broader term that describes artwork that integrates many media. I have chosen to use the broader term in many of my arguments to emphasize my view that intermedia dialog is a necessary part of all multimedia artwork when discussed through the lens of spectatorship.

Real time and Real-time

The term real-time describes events in computing that occur in the same relative temporal window as their result. Such processes are said to be operating under a real-time constraint with operational deadlines that target negligible time-from-event-to-system-response so that the results seem to happen at once. By contrast, the term real time refers to the temporal condition of reality.

APPENDIX 1: DVD CONTENTS

Documentation of *Fear of Flight*

Movement 1: *the things we long for* (9:04)

Movement 2: *the borders of the spirit* (15:03)

Movement 3: *what is and isn't are* (12:20)

Movement 4: *gravitational pull* (7:50)

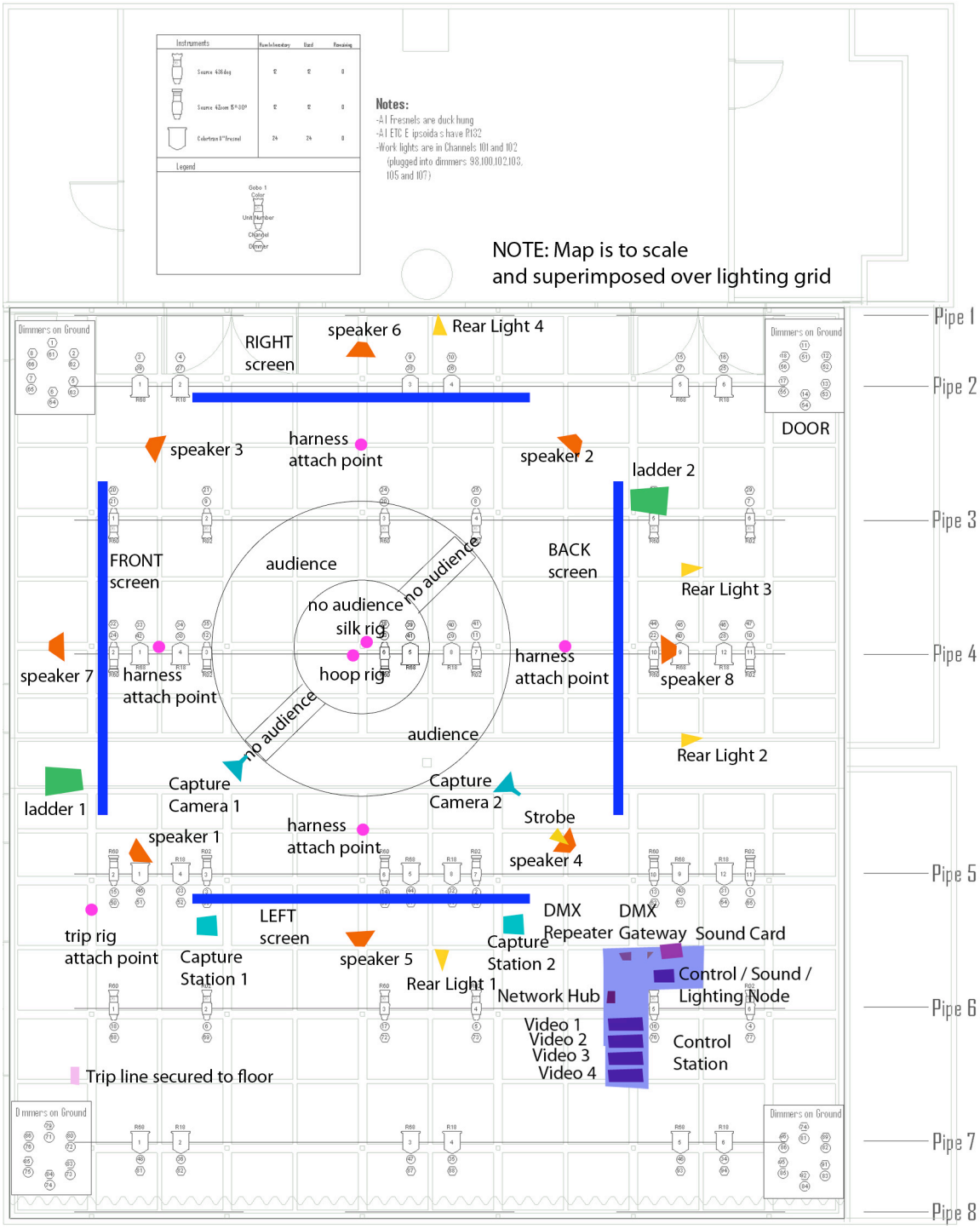
Movement 5: *in outerspace we trust* (11:04)

Examples from the Documentation

Examples 1 – 31

Please Note: The documentation of *Fear of Flight* and the examples referred to in the text, are both available online at: http://vimeo.com/channels/482787.

APPENDIX 2: THE STAGE MAP



APPENDIX 3: LIGHTING CUES

In addition to the video design, thirteen lighting cues are used in *Fear of Flight*: Pre-show, Post-show, Work, Corner-capture, Front, Shadows, Strobe, Forest, Moon, Hoop, Center, Stars, and Silk. Together, the cues employ twenty

Fig 104: The Capture Corner and Front lights are used together (M1 08:50).

Fig 105: The Shadow lighting situation reveals the supporting cast (M2 00:14).

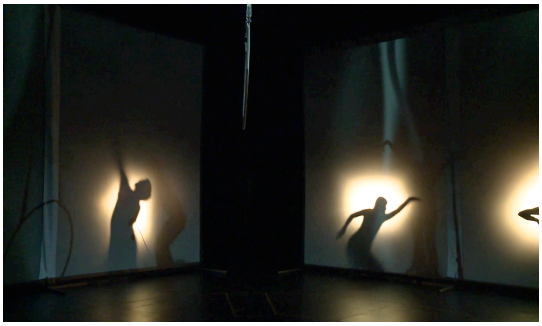


Fig 106a: The Strobe lighting situation with the strobe off (M2 01:36).

Fig 106b: The Strobe lighting situation with the strobe on (M2 01:37).

spotlights as well as the overhead Fresnels[44] that are part of the Black Box Theater's stock lighting grid.

[44] A Fresnel is a stage light that incorporates a Fresnel lens: a lens with both a large aperture and short focal length, named after its inventor Augustin-Jean Fresnel (Nave).

Movement 1 requires two lighting cues, 'Corner-capture' and 'Front', both used in *(ii).* 'Corner-capture' uses a Leko[45] to softly illuminate the front-left corner of the stage area. The Leko hit the stage diagonally, creating just enough light for a camera and the audience to see the dancer as she steps out of the shadows and performs there. 'Front' adds a long rectangle of dim light in front of the front screen. The Leko has been blocked with barn doors in order to not interrupt the front screen's projection or to illuminate more than the thin rectangle in which the dancer will perform (Capture Corner and Front, figure 104).

By contrast, Movement 2 makes use of many different lighting situations. It uses four Fresnels placed on lighting trees behind the left, right, and back screens to create shadows of the cast in *(iii)*, and a strobe light to create a tense atmosphere in *(iv)* (Shadows, figure 105, Strobe, figure 106a, 106b). It includes the most complex lighting situation used in the production in *(v):* eight 36° color-corrected Lekos with foliage-patterned gobos are used to create the illusion of a forest floor. The light centers on each of the four corners of the stage area, from which it spills out in narrowing trapezoids along each screen (Forest, figure 109). An ambient lighting situation is introduced at the end of *(v)* in *escape* by using a 26° Leko with warm-colored gel and a moon-shaped gobo to fill the center performance space inside the audience area and create a luminous image of the moon (Moon, figure 107). This effect is used in conjunction with the lights that create the Forest situation*).* Finally, in *(vi),* the dancer movements on the aerial

[45] Lekolite is a brand of ellipsoidal reflector spotlights, developed by Joseph Levy and Edward Kook for stage lighting. The lights are commonly referred to as Lekos (Wild).

hoop are accented by two 26° spotlights, hung from opposing diagonal angles, as well as very dim light from a Fresnel overhead (Hoop, figure 108).

Fig 107: The Moon lighting situation projects a moon on the floor (M2 09:17).

Fig 108: The Hoop lighting situation illuminates the hoop (M2 10:51).

Movement 3 makes use of Leko with a cool-colored gel and a stars-shaped gobo to break against the dancer and the hoop she is sitting on, keeping her only dimly visible to the audience (Stars, figure 110). It later uses a single Fresnel to create a soft ambient light in the performance space during *(xii)* when the dancer dismounts from the hoop and approaches the right screen (Central, figure 111). Movement 5 uses the same 'Stars' lighting situation as Movement 4 and adds two fixed Lekos, hung from opposing diagonal angles, to draw attention to its aerial performance (Silk, figure 112).

The pre-show lighting employs the stock lighting plot's central Fresnel light to outline the audience's seating arrangement, and the one closest to the door in the corner. The use of these two lights is sufficient to illuminate the path that the audience must take to enter the stage space. The post-show lighting uses all of the Fresnels on the stock lighting plot at low volume to reveal the complete theater setup. Between movements, the four corners of the black box theater beyond the stage area are illuminated with a very weak glow. The glow is

sufficient for actors and stagehands to move around the theater space without tripping, but is barely visible to the audience over the ambient light of the projectors.

Fig 109: The Forest lighting situation employs foliage gobos (M2 03:11).

Fig 110: The Stars light is barely visible alone against the dancer (M3 00:01).

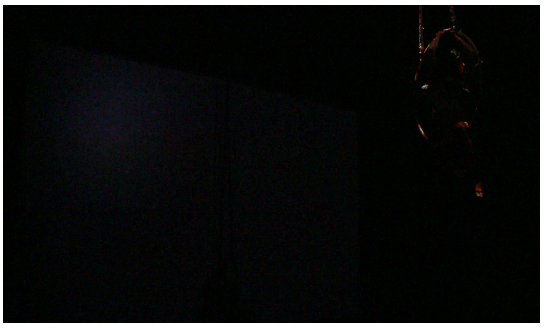


Fig 111: The Central lighting situation illuminates the center stage (M3 10:58).

Fig 112: The Silk lighting situation adds side lighting to the Stars light (M5 04:22).

APPENDIX 4: AERIAL APPARATUS

Three separate aerial apparatus are used in *Fear of Flight*'s performance: the hoop, the silk, and the suspension harness. Each of these apparatus makes use of swivels and other specialized hardware, along with climbing rope and careful knot work, to operate safely during their suspension. The hardware, rope, and knots that are used to suspend the apparatus, must adhere to rigorous safety standards and be certified against the operating loads of the performer and apparatus, much higher than their combined weight, since the forces applied to them will be quite large[46] in performance. To minimize the safety risk of aerial performance, it is essential that careful attention be paid to the apparatus and rigging materials necessary for its suspension. In addition, the location and method by which the apparatus and hardware are attached to a structure requires knowledge of the structure's load-bearing properties. Steven Portigal, a professional rigger who specializes in aerial performance, verified the equipment and rigging.

Fear of Flight requires seven separate attachment points from which to hang aerial apparatus (Appendix 2). One attachment point falls outside of the front left corner of the stage area. It is used for a trip rig, to lower in and out the aerial hoop, and does not need to be certified safe for human suspension. Four

[46] Weight, as opposed to mass, is a force that describes mass under the acceleration of gravity, properly described in Newtons ($kg * m/s^2$). The formula to calculate force: Force = Mass * Acceleration, demonstrates how acceleration scales force.

of the attachment points inside the performance space support suspension harness performance. These points are positioned so that the performers attached to them will fall between the audience and the center of each screen. The two final attachment points occur very close together on either side of the stage area's center. The point on the left side supports the aerial hoop, while the silk is suspended from the point on the right. The silk and the hoop are not allowed to fall at the same time as, when down, they occupy the same area above the seated audience. Instead, both apparatus have ways of being stored outside of the audience's attention. When not in use, the hoop is attached to a line suspended from the trip rig so that it can be pulled up towards the ceiling of the theater. The silk is tucked into a hammock suspended from the theater grid. When a line that is tied to its bottom is pulled, the silk tumbles down into place for the performance. Once the silk is released it cannot be raised again without interrupting the production.

Fig 113: Industrial Sling Configurations

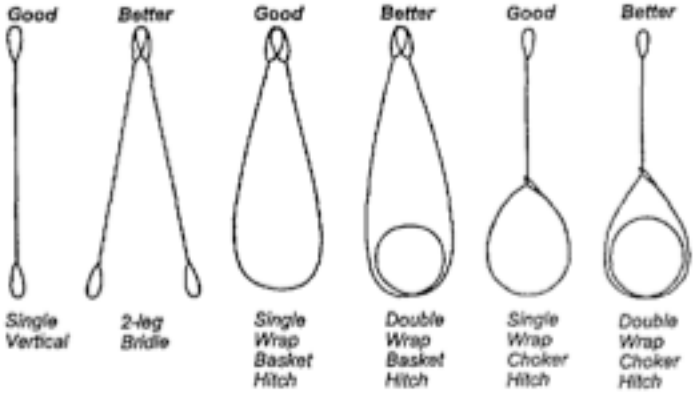


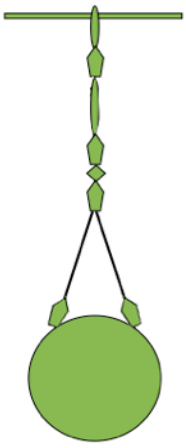
Fig 115: A Choker Hitch Knot

The Hoop

An aerial hoop, also known as a lyra, or cerceau, is a circular ring made of steel that is used by circus acrobats for aerial performance. The hoop can have either one or two attachment points from which to be suspended and can be used while still, swinging, or spinning. The aerial hoop used in *Fear of Flight* has two attachment points whose supporting lines are secured together and suspended from a single rig. The triangle formed where they meet is large enough for the aerialist to pass through or to sit on in performance. Because the hoop's rig falls from a single point, and incorporates a swivel, it can be spun.

Fear of Flight incorporates aerial hoop acrobatics into *(v)* when the dancer becomes a bird-woman and takes flight. Throughout the rest of the piece, the hoop is raised out-of-view, quite close to the theater ceiling. It is lowered by stagehands in the pause between movements 1 and 2, and raised again between Movement 3 and 4.

Fig 114: The Aerial Hoop Rig



Suspension Grid (theater)	Carpet wrapped around 2 C-beams	200 kN (approx)
4' Industrial Sling	Folded in a double wrap basket hitch	26.9 kN in basket
Steel Carabiner	Twist lock, D shape	72 kN
6' Industrial Sling	Used in a single vertical hold	17.7 kN in single hold
Steel Carabiner	Twist lock, D shape	72 kN
Swivel	Petzl Ball-Bearing Swivel	23 kN
Steel Carabiner	Twist lock, D shape	72 kN
2 2m long pieces of rope	22 mm, Cotton with steel cable reinforcement	Certified with Hoop
2 Steel Carabiners	Twist lock, D shape	Certified with Hoop
Aerial Hoop	2 attachment points, 7/8" steel ring, 39" max length, 36" inside diameter	19 kN

The hoop's rig point is positioned at a juncture between 2 C-beams on the theater's suspension grid for maximum support. The rig is suspended from an

industrial sling that circles the beams entirely before meeting its ends to ensure the rig won't slide (the double basket hitch, figure 113). A piece of carpet underneath covers the beams' edges so that they won't cut the sling. Figure 114 describes the aerial rig used to suspend the hoop during *Fear of Flight*'s April 2012 production. All together, the rig uses two heavy-duty industrial slings, two steel carabineers and a steel swivel, as well as the hoop's native setup of two steel carabineers and two pieces of dynamic climbing rope to join its attachment points to another steel carabineer from which it can be suspended.

The Silk

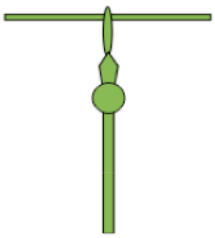
The silk, or tissue, is a long piece of fabric from which an aerialist may fall or hang. The fabric has high elasticity to absorb the shock of the performance, and can stretch significantly over its lifetime. The silk is attached from its center point, which is wrapped around a steel ring, rigging plate, rescue 8 or figure of 8 descender[47], and secured so that it tightens as its tails are pulled and won't slide. In performance, the aerialist distributes his or her weight over both tails of the fabric, continuously reinforcing the knot. The knot must separate the folds of fabric around the hardware to prevent ripping. Aerial acrobatics on the silk include climbs, wraps, and drops. The silk used in *Fear of Flight* is a 56' x 60' piece of black polyester/nylon blend fabric, certified to withstand large amounts of weight by the professional circus company "Cirque du Soleil".

[47] Rescue 8s and figure of 8 descenders are pieces of rock climbing hardware with two holes, one large and one smaller. Because of their shapes a silk can be safely wrapped through either quite easily.

Fear of Flight introduces silk performance in Movement 5. Before Movement 5 begins, the dancer brings a thin rope that has been dangling behind the rear screen, to the reserved circle in the middle of the audience. She pulls the rope to lower the silk it is attached to from its hammock, unties the rope, and climbs the silk in the darkness. When Movement 5 begins, the dancer is already suspended sideways, in a wrap, quite high above the audience. The silk disappears in the mythological narrative, where the dancer is not suspended, but instead floats weightless in space.

Like the hoop's rig point, the silk's is positioned at a juncture between 2 C-beams, wrapped in carpet, on the theater's suspension grid. It is suspended from an industrial sling wrapped in a double basket hitch (figure 113), as well as a steel carabiner, and a large steel ring that is used an anchor for the silk. The silk is wrapped around the ring in a modified choker hitch knot (figure 115). Figure 116 describes the aerial rig used to suspend the silk.

Fig 116: The Aerial Silk Rig



Suspension Grid (theater)	Carpet wrapped around 2 C-beams	200 kN (approx)
4' Industrial Sling	Folded in a double wrap basket hitch	26.9 kN in basket
Steel Carabiner	Auto lock, Modified D shape	40 kN
Steel Ring	Forged Steel, Rod diameter ½"	44,4 kN
Aerial Silk	Folded in a single wrap double choker around anchor ring, 56' x 60', Suspended height 28', Polyester and Nylon construction	

The Suspension Harness

A suspension harness is a wearable restraint used to secure a person to an anchor point above them from which they are suspended. In rock-climbing, suspension harnesses are commonly used to secure climbers to rope and safety gear as well as to their anchor points. The popularization of rock climbing means that suspension harnesses are readily available in many materials and styles ranging from simple loops of rope around the waste to complex garments with sleeves and legs and multiple attachment points. The suspension harnesses used in *Fear of Flight* are simple climbing harnesses made by rock climbing equipment manufacturers Black Diamond. The harnesses close with a safety strap around the waste and include loops around the thighs for support. The thigh loops connect to the belt in a single front attachment point, enabling the wearer to hang from their mid-section in a seated position.

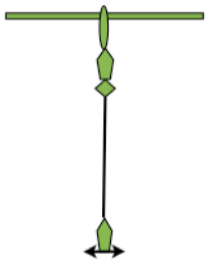
Between the fourth and the fifth movements, stagehands move four long tails of rope, suspended from the theater's suspension grid, from their positions tucked behind the screens onto the stage. Partway into Movement 5, two small processions of bird-women enter opposing sides of the stage. Under their costumes, the bird-women wear suspension harnesses. They use portable ladders to clip themselves to the ropes so that they are left sitting in mid-air between the audience and the screens. The suspension harnesses allow the bird-women to float, fly, and fall in the field of stars in which they are surrounded.

Fig 117: A Triple Surgeon's Knot

Fig 118: A Double Figure of Eight Knot

In *Fear of Flight*, the harness suspension points do not need to support as much load as do the hoop or silk suspension points. The four bird-women do not do any real acrobatics and apply little more force than that of their own bodyweight to the rigs, certified to support many times the force of their performance. Each suspension harness rig is positioned at a juncture between 2 C-beams on the theater's suspension grid. A piece of carpet is wrapped around the beams and cradled by an industrial sling in a single basket hitch, joined together with a steel carabineer, from which is suspended a steel swivel that is tied to a long piece of rope (figure 113).

Fig 119: The Suspension Harness Rig



Suspension Grid (theater)	Carpet wrapped around 2 C-beams	200 kN (approx)
4' Industrial Sling	Folded in a single wrap basket hitch	26.9 kN in basket
Steel Carabiner	Auto-lock, Modified D shape	40 kN
Swivel	Rock Exotica S3 Orbitor	26 kN
Rope	7/16" ATL-Cordage, Dynamic braided, Attached to swivel by a triple surgeon's knot and ending in a loop secured with a double figure-of-eight knot.	8 kN impact force
Steel Carabiner	Auto-lock, Modified D shape	40 kN
Harness	Black Diamond Momentum SA	12 kN haul loop

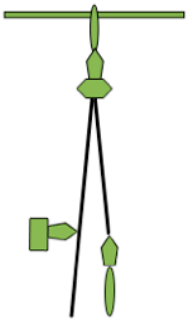
A single basket hitch is not as secure a wrap as a double basket hitch for an industrial sling supporting a heavy load. In a single basket hitch, the sling is certified for less weight and is more likely to slide in its location, however, the wrap adds more length to the rig and is only a safety concern if it supports a very large load under significant force and movement. Figure 119 describes the aerial rig used for each suspension harness. The rope is passed through the swivel and tied to itself using a triple surgeon's knot (figure 117), a knot that is especially

useful for tying together lines of unequal sizes (Grogono et al). At its other end, the rope is looped and tied using a double figure-of-eight (figure 118) which is less bulky and keeps the performer's suspension angle straight (Field & Stream's). The carabineer that will attach a performer to the loop is stored on their suspension harness.

The Trip Rig

The term 'trip rig' is derived from the trip lines that fishermen use to pull in their anchors once they've been snagged. A trip rig is any rig that can be used to pull in or reposition other suspended equipment. In *Fear of Flight*, the trip rig is moves the aerial hoop out of the performance area, along the theater's ceiling. Rope is run through a pulley on the theater's suspension grid and tied off to the floor to support the hoop's weight.

Fig 120: The Trip Rig



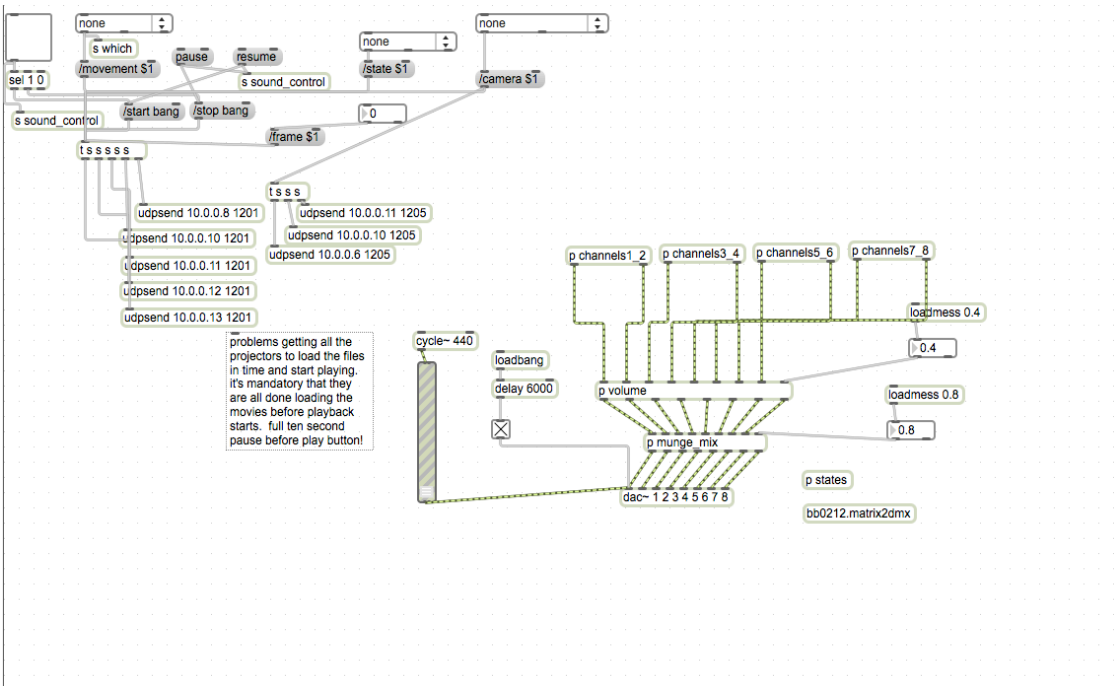
Suspension Grid (theater)	Carpet wrapped around 2 C-beams	200 kN (approx)
4' Industrial Sling	Folded in a double wrap basket hitch	26.9 kN in basket
Aluminum Carabiner	Twist lock, D shape	21 kN
Aluminum Pulley	Petzl Fixe, Rope diameter 7-13mm	5 kN
100' Rope	7/16" ATL-Cordage, Dynamic braided,	8 kN impact force
Aluminum Carabiner / Aluminum Carabiner	Twist lock, D shape / Twist lock, D shape	21 kN / 21 kN
Steel Ring Plate with 4 screws / 3' Industrial Sling	Screwed into theater floor / Folded in a single choker	0.5 kN / 22 kN

The trip rig is in use for most of the performance, outside of the visible stage area. In the pause between movements 1 and 2, a stagehand enters the performance space to release the hoop securely while another braces the line. In

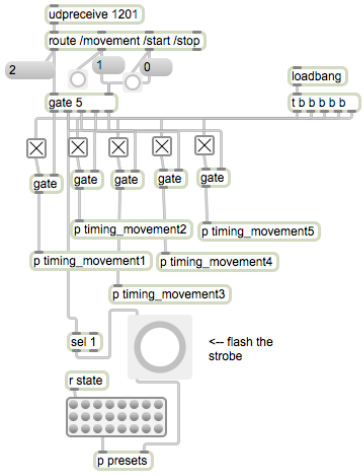
the pause before the third movement begins, a stagehand re-attaches the rig to the bottom of the hoop and guides it over the audience's heads while another stagehand gently hoists it back into place. Like the other rigs, the trip rig is suspended from an industrial sling positioned at a juncture between 2 C-beams on the theater's suspension grid. A piece of carpet is used to shelter the sling from the beam's edges. Figure 120 describes the trip rig used to raise the hoop. The sling is wrapped in a double basket hitch and suspends an aluminum carabineer holding an aluminum pulley. A long run of rope is threaded through the pulley. The end of the rope facing the performance area is looped and tied to itself in a double figure-of-eight. An aluminum carabiner joins the loop with an industrial sling. When the rig is in use, the sling will be tied to the hoop in a choke hitch (figure 115) and re-attached to the carabiner. A steel ring plate is screwed into the floor under the pulley, over which falls the other leg of the rope. An aluminum carabiner is attached to a loop in the rope, tied using a double figure-of-eight (figure 118), at the length needed to reach the steel ring plate after the hoop is hoisted.

APPENDIX 5: THE PERFORMANCE SYSTEM

The Control Patch



The Lighting States



state 1: dark house

state 2: dim house

state 3: back lighting

state 4: strobe fast

state 5: silk

state 6: silks with stars

state 7: just stars

state 8: capture

state 9: front and capture

state 10: just front

state 11: flock and moon

state 12: hoop

state 13: flock

state 14: moon

state 15: ambient from center

state 16: bright house

state 17: strobe slow

state 18: ambient from center + moon

state 19: flock USL

state 20: flock USR

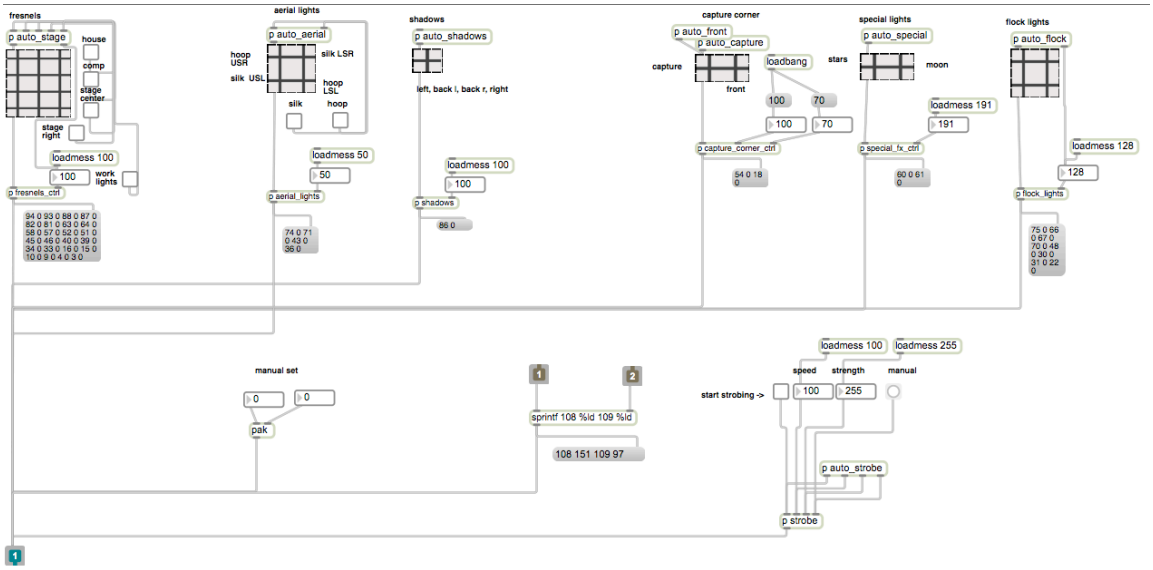
state 21: flock DSL

state 22: flock DSR

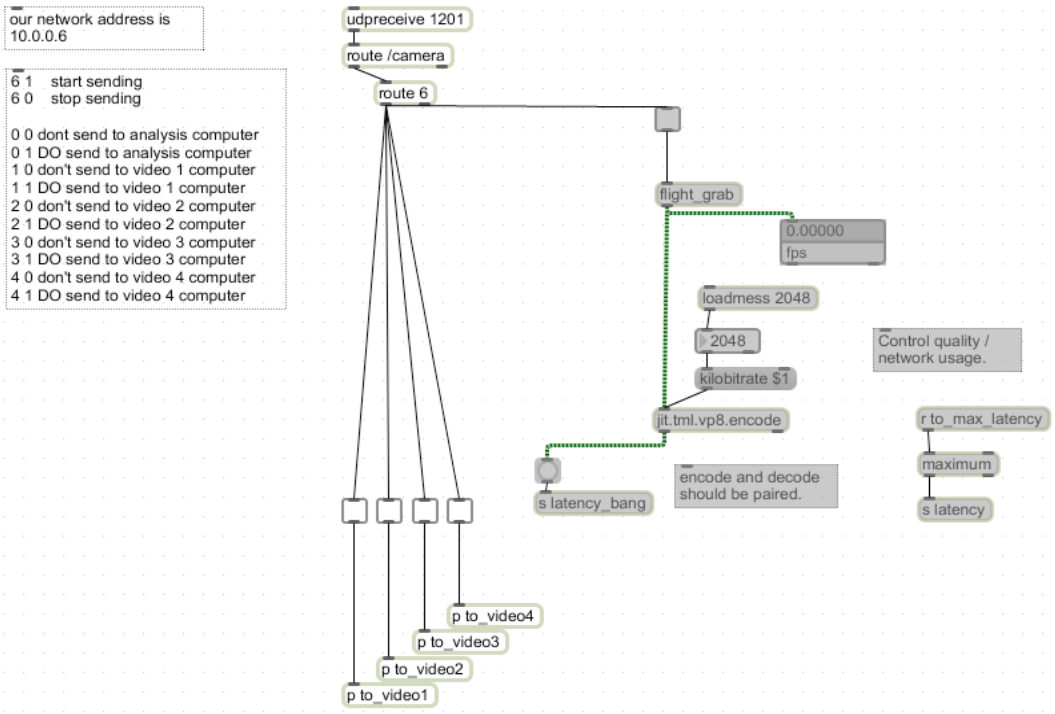
state 23: flock USR DSR + hoop

state 24: work lights

The Lighting Controls



The Capture Control



Video Playback

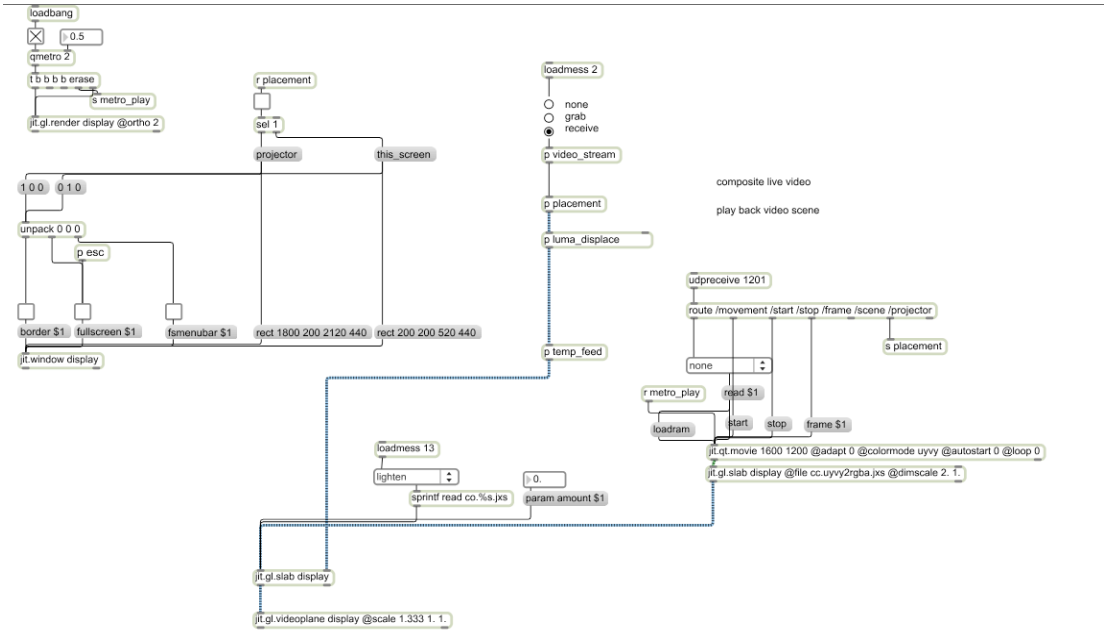
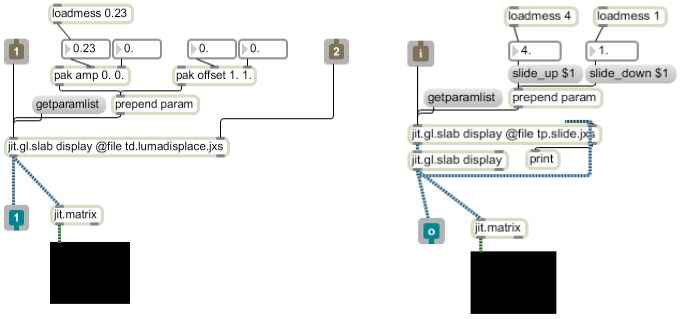
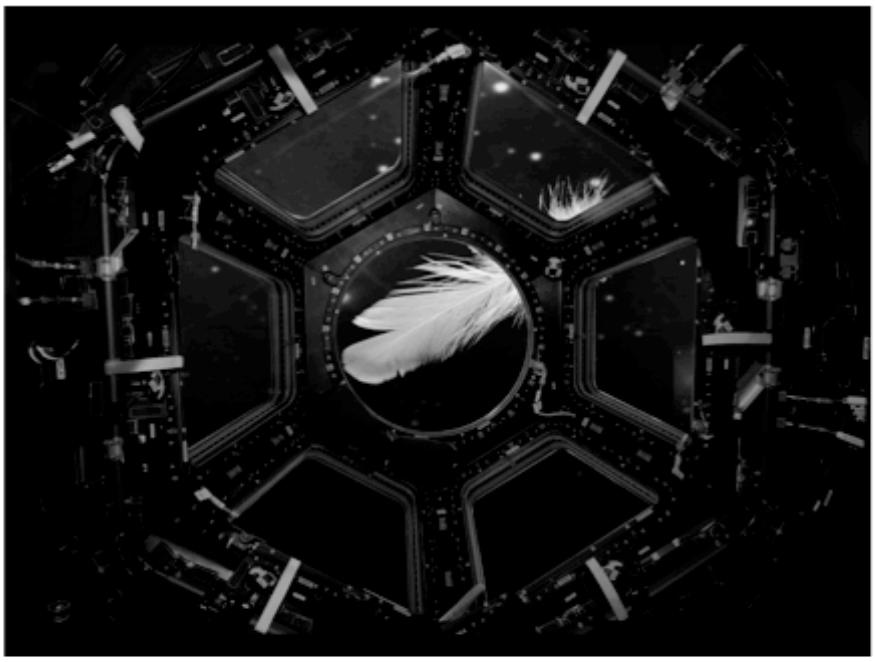


Image Processing



APPENDIX 6: THE PRODUCTION CREDITS

fear of flight



an immersive multimedia production in five movements, by Freida Abtan

fear of flight

i.	the things we long for	(9:03)
ii.	the borders of the spirit	(15:00)
iii.	what is and isn't are	(12:20)
iv.	gravitational pull	(7:41)
v.	in outer space we trust	(11:30)

fear of flight is an abstract narrative of spiritual desire and physical transformation, phrased in the metaphorical language of birds and space travel. The piece explores the ways that imagination is limited by prior experience, and the roll of technology as an magical intermediary to new dreams.

the things we long for

A woman's dream of birds, stirs a longing within her to take flight. She examines a birdcage and hears the movements of an invisible flock of birds surrounding her, commanding her attention.

the borders of the spirit

A bright light escapes from the cage and fills the room with shadow creatures who take the form of birds. The woman attempts to join their flock, and is able to fly as in her dreams. After landing, she discovers that she is now trapped in the birdcage she once considered.

what is and isn't are

From her perch in the air, the woman dreams. She sees a procession of mythological bird creatures approach and recognizes herself as their leader. As the woman meets up with her double, she reaches into her double's heart and a stream of birds pours out, transforming the cage that surrounds her into a spaceship

gravitational pull

The woman's psyche is revealed through the spaceship's windows. The ship takes off, into the unknown.

in outerspace we trust,

The woman floats weightless in space, leaving the charred husk of the spaceship behind her. It's a brave new world.

CAST

Caroline Rochefort	Lead / Aerialist
Geneviève Bolla	Bird creature / Dancer
Émilie Gratton	Bird creature / Dancer
Isabelle Arcand	Bird creature / Dancer
Amy Rae Hudston	Bird creature / Dancer

VIDEO

Audrey Ellis Fox	Lead, early shoot
Bonnie E. Johnson	Bird creature, early shoot
Caroline Rochefort	Lead, final shoot
Geneviève Bolla	Bird creature, dreamer
Émilie Gratton	Bird creature, dreamer
Isabelle Arcand	Bird creature, dreamer
Amy Rae Hudston	Bird creature, dreamer
Sarah Desrosiers	Parade extra
Emily Comeau	Parade extra
Dee Harding	Parade extra

PRODUCTION

Freida Abtan	Concept creation and realization
	All audiovisual production
Geneviève Bolla	Dance Choreography
Caroline Rochefort	Aerial Choreography
Emilie Comeau	Costume Design
Jasa Baka	Costume Assistant / Video Stylist
Andrea Joy Rideout	Lighting Design
Jason Harvey	Production Assistant
Harry Smoak	Technical Consultant
J.S. Rousseau	Technical Consultant
Navid Navrab	Technical Consultant
Julian Stein	Technical Consultant
Steve Portigal	Aerial Rigging
Caroline Rochefort	Aerial Consultant
David Jhave Johnson	Documentation
Alex Gaskin	Prop Design and Construction

This production would not have been possible without generous equipment loans from both Sha Xin Wei's Topological Media Lab and Chris Salter's XModal Lab, as well as from Hexagram. Special thanks go to both Todd Winkler and Butch Rovan from Brown University, and Sha Xin Wei and Chris Salter from Concordia University. Also: Mark Baehr, Andrea Joy Rideout, Shane Turner, Brad Shur, Kent Leclerc, Amy Rae Hudston, Caspian Kilkelly, Yann Fausserier, Shirey Halpern, Sam Goldstein and Dee Harding.