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**Author**

Savery, Anna

**Publication Date**

2016

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA,

IRVINE

Intermedia Storytelling

THESIS

submitted in partial satisfaction of the requirements  
for the degree of

MASTER OF FINE ARTS

in Music

by

Anna Savery

Thesis Committee:  
Professor Kojiro Umezaki, Chair  
Professor Lukas Ligeti  
Professor Victoria Petrovich

2016



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## ACKNOWLEDGEMENTS

I would like to thank my thesis chair, Kojiro Umezaki for his guidance and support throughout this project. I would also like to thank my committee members Victoria Petrovich and Lukas Ligeti for their valuable input and the rest of the Integrated Composition, Improvisation and Technology course faculty—Michael Dessen, Nicole Mitchell and Christopher Dobrian. A big thank you also goes out to Scott Stone for his help with my research in preparation for this thesis.

I thank UCI and Claire Trevor School of the Arts for the opportunity to do a project that was challenging, rewarding and deeply personal.

Finally, I would like to thank my peers, Molly Elizabeth Jones, Anthony Caulkins, Jordan Watson, Michele Cheng, Gunta Liepina, Borey Shin, Hassan Estakhrian, and Elizabeth Erickson for making these past two years an incredible experience.

To my family, thank you for your patience.

## Introduction

This paper focuses on the works of Laurie Anderson, Jarosław Kapuściński, Roger Dannenberg and R. Luke DuBois, as an attempt to inform my own research and creative output within an intermedia platform. These four artists were chosen for their significant contribution in the field of narrative-driven performative art that integrates music, visuals and technology.

Laurie Anderson has established herself as an innovative experimental and performance artist, with a focus on stories and storytelling. Her integration of music, electronics and visuals is always driven by a narrative, derived from a concoction of Anderson's dreams and worldly experiences, always with the intent to tell a story. Jarosław Kapuściński comes from a background of classical piano performance. However, his focus is always on creating a complete performance experience, in which the visual representation and narrative were always an essential part. Kapuściński's first experience with animation and computer graphics was at the Banff Center, Canada in the late-eighties. He has continued developing his work, using samples, stop animation, Jitter, as well as collaborating with visual artists as a composer and programmer. Roger B. Dannenberg is a professor of computer science, art and music at the Carnegie Mellon University in Pittsburgh. He has made significant contributions to the field of computer music through his research, lectures and compositions. In relation to narrative-driven intermedia performative art practices, Dannenberg explores interactive visuals and music through different music notation programs as well as a software system called Aura, based on the C++programming language. R. Luke Dubois is a New York based composer, performer, programmer, conceptual artist and pedagogue. Dubois' body of work is highly expansive and varied, representative of his multitude of skills, as well as the current trend towards integrative practices in the musical and visual arts made available through the rapid development in digital technologies. In relation to his narrative-driven compositions with interactive visuals, the section dedicated to Dubois will focus on his twelve-movement piece, *Moments of Inertia*.

## Laurie Anderson

Laurie Anderson, a performance artist, violinist, sculptor and inventor, developed her individual style on the art scene in New York in the 1970s, and has contributed significantly to the field of narrative-driven intermedia performance art. In John Howell's *Laurie Anderson*, she describes herself as "just a storyteller. What I do is just the world's oldest art form...As an artist, I have always tried to connect two worlds,...the so-called real world and the other world, an alternate world of possibility and chance: a dream world."<sup>1</sup>

In the same book, Janet Kardon writes about Anderson's use of recurring imagery: "...she relies on several images, which represent a discrete Anderson iconography—clocks, maps, charts, grids and ideogrammatic line drawings."<sup>2</sup> Similarly, Roselee Goldberg also talks about Anderson's use of imagery in her book *Laurie Anderson*.<sup>3</sup> "Anderson's fascination with language—spoken, hand signed, foreign—led to the development of her own ideograms...her own easily recognizable graphics and animation films—a man, a woman, faces, houses, telephone, airplanes, clocks—she has created a highly personal and visual vocabulary of her obsessions."<sup>4</sup> These images are used as metaphors to explore themes and develop narratives. One such recurring theme is memory. Anderson constantly draws on her extensive collection of themes and images throughout her body of work. By relying on her own memories as a source of inspiration and tool kit and recycling material—directly or with alterations—in a self-referential manner, she gains access to uniquely personal ways of reflecting upon the past: "...occasionally I try to slip it in [the past], in this case to

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<sup>1</sup> John Howell, *Laurie Anderson* (New York:Thunder's Mouth Press, 1992) p10

<sup>2</sup> Janet Kardon, *Language and Image, Theme and Motif* (New York:Thunder's Mouth Press, 1992)

<sup>3</sup> RoseLee Goldberg *Laurie Anderson by RoseLee Goldberg* (New York: Harry N. Abrams, Incorporated, 2000)

<sup>4</sup> Goldberg, *Laurie Anderson* 118

try and understand what the future means. There's projection involved in the past, too."<sup>5</sup> In her live performances, Anderson also explores the memories of her audience. Anderson's work exists to a certain degree, solely in her audience's memories, since most of it happens live, without documentation. "I want to just exist in people's memories and then when they forget, that's it."<sup>6</sup> Hence, whatever is captured in the moment is the memory that the audience is left with. However, through the constant recycling of her own material, Anderson's thematic and symbolic vocabulary works as a reminder, creating a unified link throughout time, triggering memories of past performances within the present moment.

Anderson ties together the musical and visual aspects of her works through her heavy use of technology. These technologies range from her own inventions, such as the tape bow violin (an electro-acoustic violin where magnetic tape replaces the bow hair), to various types of commercially available electronics and software. Anderson's creative process involves hands-on experimentation, trial and error, limited only by her own imagination:

Self-taught, she would invent new uses for old equipment by taking apart cheap electronic objects found in secondhand shops on Canal Street near her loft, and putting the pieces back together again for her own unusual ends. "A lot of my work comes from playing around with equipment, seeing what it will do."<sup>7</sup>

In her 1985 work, *Home of the Brave*, Anderson combines video, animation, choreography, electronics, music, costuming, and stage design to create a feature length film. The soundtrack for the film came from Anderson's 1984 album *Mister Heartbreak*, which followed a concert tour under the same name.<sup>8</sup>

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<sup>5</sup> Howell, *Laurie Anderson* 58

<sup>6</sup> Goldberg, *Laurie Anderson* 44

<sup>7</sup> *Ibid.*, 14

<sup>8</sup> Goldberg, *Laurie Anderson* 111



As discussed earlier, the visuals are not a literal representation of the narrative, but rather a collection of themes and symbols from Anderson's previous work. Used as a shorthand or metaphors for specific ideas, Anderson creates a story through her own vocabulary of images.

...she had provided an iconography of visual references that would keep art historians busy for years to come...all were distinctly drawn or represented in signature Anderson style, and each held a clue to her stage; "clocks" to time, fast and slow; "presidents" charged with power, sexuality, and mythology; "television" with the politics of control. Each had appeared in her earliest material, whether in the handmade books of the early 1970s or in performances that she toured continuously...And each was a signpost for the future, since every one of them has continued to appear in Anderson's work to the present day.<sup>9</sup>

In *Home of the Brave*, we see a home with large windows during *Sharkey's Day*—an ancient metaphor borrowed from the art world, representing a portal to another virtual space, within a space. By borrowing from established theatrical and art conventions and manipulating them to suit her unique performance style, Anderson created a recognizable, yet individualized visual vocabulary for her narratives. In *Gravity's Angel*, the central image is an airplane. Kardon states that "Anderson may be drawing on her own traumatic flying experience, when she refers to flight in both visuals and narration."<sup>10</sup> She also states, "In Anderson's work the airplane appears as image, as acoustical element, and as the set for narratives."<sup>11</sup>

*Smoke Rings* uses visuals only towards the very end of the song. The letters SOS turn into the numbers 911, resembling rings of smoke. The movement of the letters and numbers seem to correlate with the rhythm of the song, but only subtly. Anderson's dancing and that of her backing vocalists create an illusion of interactivity with the visuals. The letters and numbers enter not as a new focal point of the song, but as playful characters that take the song to a close. Their

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<sup>9</sup> Goldberg, *Laurie Anderson* 12

<sup>10</sup> Kardon, *Language and Image* 130

<sup>11</sup> *Ibid.*, p131

appearance, tied in with what we see on stage, seems logical and easy to absorb. *Late Show* has the visuals directly corresponding with the music, in the sense that they are one entity. Anderson uses her electric violin to play samples of William S. Burroughs' voice in sync with the moving mouths of projected silhouettes. This brings the silhouettes to life, but also connects them with Anderson, who still remains the focal point of the performance, dressed in a white suit, and clearly in control of their voice as she moves her violin bow to trigger the samples. In *How to Write* and *Kokoku*, Anderson uses ideograms as visuals. These sign systems are yet another part of her vast collection of visual symbology as well as representing her knowledge and love of language and spoken word. "Stories turn into images or rhythmical utterances in order to narrate from different perspectives, mediating one media of representation through another."<sup>12</sup> In *Talk Normal* Anderson uses an extreme close up projection of her own face as a visual device. She is observing the shenanigans that are taking place on stage as the musicians engage in silly, exaggerated behaviour, part musical, part exercise class. Gym equipment is used as props and the keyboard player is doing a ballet like leg stretch on one of the keyboards. Anderson's face has a quasi-omniscient presence, adding to the absurdity of the moment. Once Anderson appears from a trap door in the stage floor, the face slowly disappears, creating a connection with the visual and the live performer. A close up of a face is also used in *Sharkey's Night*, though, this time, it is a simple, generic drawing, without an identity. It is simply displayed on the screen, without any animation, blank and lifeless. This unidentified face ties in with the opening *Good Evening*, where, like *Sharkey's Night*, the performers are wearing masks that obscure their identity. Their eyes are blank, their noses are a simple triangle and their lips are static, despite their vocalization of the song's lyrics. The symbol of a blank face creates a narrative link between the opening and closing songs. In *Good Evening*, Anderson's face is also covered, but in *Sharkey's Night* she is the only one without a mask. Perhaps it is her mask that is displayed up on the screen?

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<sup>12</sup> Silvija Jestrovic, *The Performer and the Machine: Some Aspects of Laurie Anderson's Stage Work*, accessed 2 May, 2016 <http://people.brunel.ac.uk/>

Despite Anderson's year long toil over the production of *Home of the Brave*, it was not well reviewed and failed to be a commercial success.<sup>13</sup> As a result of this personal failure and exhaustion, Anderson turned to minimal production value with her *Empty Places*. This was a solo act, involving music, electronics, visuals and a narrative. Although scaled down considerably from *Home of the Brave*, this performance piece still involved high levels of complexity in combining intermedia elements.

The set for *Empty Places* consisted of two twenty-foot projection towers on either side of the stage and three movable units in the center: These structures were covered with screens for rear projection. Forty-five slide and film projectors were located in the structures and controlled by one image computer: In addition there were projectors from front-of-house positions for a large screen hung at the back of the stage. After several weeks on the road we were able to get the entire system running in just a few hours.<sup>14</sup>

Similarly to *Home of the Brave*, *Empty Places* involved symbology, abstract themes and a fragmented narrative. In *Lolita (Empty Places)*, we see a large window filled with light, and in *Hiawatha (Empty Places)*, Anderson uses water, a telephone, light and large open windows. Her large scale productions have earned her the reputation of an "electronic wizard."<sup>15</sup> "I saw gadgets and I wanted them. It was really simple. I just love tricks. And then I would find a way to use them. I love electronics."<sup>16</sup> Just like her use of symbology, Anderson integrated her passion for electronics into her art to serve her narrative purposes. In *Home of the Brave*, the tape bow violin is used to communicate text (*Late Show*) and play specific melodic samples (*Smoke Rings*), with both instances incorporating the gadget directly into the narrative of these songs. This purposeful

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<sup>13</sup> Goldberg, *Laurie Anderson* 14

<sup>14</sup> Laurie Anderson, *Empty Places: A Performance by Laurie Anderson* (New York: HarperCollins Publishers) p114

<sup>15</sup> Don Shewey, *The Performing Artistry of Laurie Anderson*, The New York Times

<sup>16</sup> Howell, *Laurie Anderson*, 59

approach to the use of technology is one of my key interests in Anderson's work, as she masterfully creates an intermedia experience where every gadget, visual or prop is infused with meaning within the story, whether clear or abstract.

Anderson is very sensitive to her audience, and what requires their attention. Despite the large elaborate productions, or the complexity of a one woman show, Anderson is aware of what element to bring to the forefront at one specific time, in order to remain clear and effective in terms of narration. "One of my jobs as an artist is to make contact with the audience, and it has to be immediate."<sup>17</sup> This is a vital element in any intermedia performance piece, as the audience can be easily confused with the clutter or the overwhelming amount of information presented to them at once. This is a point also discussed by Jarosław Kapuściński and Roger Dannenberg.

### **Jarosław Kapuściński**

Kapuściński is a pianist, composer and intermedia artist. The technology behind his work is mostly rooted in *Max* and *Ableton Live*. Although Kapuściński has collaborated with numerous visual artists, he aims to be involved in the entire creative process throughout, to provide input and develop an organic, cohesive idea of the work. The idea is that, in an intermedia work, which involves music and visuals, the two must be created together, side by side. An example Kapuściński uses to describe creating music and visuals separately is if you were writing a piece for violin and piano, but you wrote the entire piano part first.<sup>18</sup> Kapuściński has a specific approach to using Max and Ableton, where he focuses on triggering samples, visual and audio. He is highly interested in samples, because they reflect everyday life, and he is interested in all things emotional and living. The samples are closely tied with the music, as

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<sup>17</sup> Goldberg, *Laurie Anderson*, 11

<sup>18</sup> Jarosław Kapuściński, interview by Anna Savery, August 1, 2015, Irvine CA and San Francisco CA.

certain pitches (or in some cases like *Juicy*, almost every pitch) act as triggers for a visual cue. The visual samples are derived from different sources, depending on each work.

In *Oli's Dream*, Kapuściński imagined the piano to be representative of a typewriter. As the keys are compressed, letters appear on the screen. To realize his vision, Kapuściński sampled letters from a number of different typewriters. He sampled different iterations of each letter to make it seem more realistic. In this piece, Kapuściński wrote the music, sampled sounds and visuals, and programmed the visual interaction in Max between the music and visuals. Although there is text—a poem written by Camille Norton specifically for the piece<sup>19</sup>—the narrative remains abstract and fragmented. Through the correlation between the sound effects (a baby crying/talking, typewriter clicks, a motorcycle), and the projected letters, there is a playful sensation of *Oli* being created and gradually developing a consciousness of his own existence. This illusion constructs itself through the narrative of the poem, as well as the way the words are projected onto the screen and interact with the sound effects and the music. They move in all directions, change in size and color (from black to white) and at times have a direct relationship with the music and sound effects through synchrony in timing and movement. This toying around with the text fosters a kind of puzzle, where there is not just clever word play within the text, but also the narrative is somewhat obscure and is revealed a fragment at a time.

In *Oli's Dream*, the interaction between music and visuals is very deliberate and calculated. Specific pitches trigger corresponding visuals. Therefore, the performance is reliant on note accuracy. Although the music does not call for any improvisatory sections, flexibility is created through the elasticity of rhythm and duration. This variation in speed is achieved through the direct relationship of the triggers. If the performer takes liberty with the tempi, the visuals will

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<sup>19</sup> Jaroslaw Kapuściński, *Oli's Dream* (intermedia performance for MIDI piano and real time computer projection), poem by Camille Norton

appear in correspondence. The tempo is therefore malleable, allowing room for expressivity within rubato sections and fermati. This expressivity is a focal technique in Kapuściński's work.

The concept of reactivity and interactivity in Kapuściński's works is explored on an emotional level. The idea of programming reactive visuals rather than simply accompanying a pre-recorded video is justified in the expressivity and flexibility of time and duration. However, Kapuściński points out another level of expression, where although the visual programming is not in any sense algorithmic, or reactive, he himself reacts to the visuals emotionally every time. In his piece *Where is Chopin?*, the expressions of the people sampled will never alter, however, to him, as a performer, they always provide a sense of surprise and new emotions, altering his interpretation. This, to Kapuściński, creates a sense of interactivity between his music and visuals. Although this can be said about any piece that is mostly pre-composed, what puts Kapuściński's variation in experience to a greater degree is the intermedia platform of music and visuals, driven by a central narrative, whether abstract or simple. He is able to be expressive musically and visually, creating a rich and engrossing sensory palette for his audience, which would be less so had these elements been separated.

### **Roger Dannenberg**

Roger Dannenberg has contributed significantly to research in the field of interactive computer systems, including visual representation of music. Although his research focuses on computer notation systems, he also explores interactivity between music and visuals, such as his works *Critical Point* and *In Transit*.

In his article, *Interactive Visual Music: A Personal Perspective*, Dannenberg supports many of the conceptual theories discussed and executed by both Kapuściński and Anderson. He talks about sensory overload, in that if there is excessive complexity in both visual and aural elements concurrently, an audience is not capable of processing the experience simultaneously as a whole. Even grasping the two separately can be too much within a live setting, therefore, an attempt to

combine them, according to Dannenberg is overly ambitious. Dannenberg discusses his perspective on solving this dilemma, in regards to achieving emotional depth and expressivity within the music and visuals, by avoiding unnecessary complexities. His examples consist of non-superficial ways, like a connection between compositional structure and images, rather than a more obvious one-to-one relationship.

In his work *Critical Point*, Dannenberg collaborated with artist and academic Tomás Laurenzo. The piece is written for cello, audio manipulation and interactive visuals. In this work, Dannenberg explores the range, texture and dynamics of the cello to create a new sonic palette with electronics as an extension of the performer's technique. The computer interacts with the performer by providing audio effects such as pitch shifting with delay and feedback in order to create a complex polyphonic texture.<sup>20</sup> Dannenberg also uses algorithms to add complexity to the delay effect. Another technique is the use of the vocoder<sup>21</sup> (a synthesizer that produces sounds from an analysis of speech input)<sup>22</sup> to mimic vowel sounds of the performer. Despite all these extensive computerized effects, the musical goal of the piece revolves around the acoustic sound of the cello. Most of the affected sounds originate from the cello itself, capturing the warmth and tonal expressivity of a live performer, but then stretching beyond the instrument's and performer's technical capabilities by adding layers of chords unplayable by a single cellist and notes beyond the instrument's range. Dannenberg's approach to combining complex interactive algorithmic computer effects with a live acoustic instrumentalist does not lose sight of the importance of the music and compositional structure for his audience. Layers of intricate computer manipulated sounds are craftily woven into the form of the piece, creating a unified, cohesive interaction between computer and cello.

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<sup>20</sup> Roger Dannenberg, *Critical Point, A composition for Cello and Computer*

<sup>21</sup> Ibid., p2

<sup>22</sup> "Google Dictionary Definitions - Google Guide." *Google Dictionary Definitions - Google Guide*, accessed 29 Apr. 2016, <https://www.google.com>

The animation is created using the program Aura, which is designed to create real-time interactive music compositions and applications.<sup>23</sup> It is programmed in C++ and Serpent. During the performance, sound and video manipulations are manually controlled by a human in real-time using a graphical interface<sup>24</sup> (a visual, rather than text based interface displayed on a computer screen) to trigger various cue changes while following the score. The visuals appear to be blue in color throughout the entire performance and are projected onto the back wall of the performance space, behind the cellist. At times, the projection captures the shadow of the performer, integrating his movements into the animation. There is no clear narrative in projected visuals, only an abstract array of distorted shapes and lines that move about in reaction to the music. "The animation process is roughly synchronized to the performance so that the animation can coordinate with both the audio effects and the cello music."<sup>25</sup> Just like the audio effects, Dannenberg uses the animation as a visual extension of the performer's technique. The music and visuals are cohesive, evolving unitarily throughout the twelve minute performance.

Similarly to Kapuściński's work, Dannenberg uses rhythm and duration as a basis for improvisation. "For the most part, pitches are provided, but rhythm is optional. This allows the cellist to engage in a kind of call-and-response dialog with the electronics, which echoes processed sounds from the cello. The cellist can wait for just the right moment to continue."<sup>26</sup> In comparison to *Oli's Dream*, *Critical Point* has more interpretive flexibility, since computer interactivity is being aided by a second human performer, rather than being directly linked to the pitches produced by the cellist. This assistance allows the cellist to take liberties with intonation and tempi, however, unlike *Oli's Dream*, through this freedom the instrumentalist loses total

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<sup>23</sup> "Google Dictionary Definitions - Google Guide." *Google Dictionary Definitions - Google Guide*, accessed 29 Apr. 2016, <https://www.google.com>

<sup>24</sup> Roger Dannenberg, *Critical Point, A composition for Cello and Computer*

<sup>25</sup> *Ibid.*, 3

<sup>26</sup> Dannenberg, *Critical Point*, 2



control of the intermedia platform, as the visual and audio effects are dependent on another performer's judgement. Within the sophistication of Dannenberg's intermedia composition lies an accessible and engaging piece of music.

We [Dannenberg and Lorenzo] hope that *Critical Point* offers an interesting experience to the listener and viewer. We find it interesting that *Critical Point* takes its form and direction from multiple sources. The composer and animator establish the design of the main musical and visual elements. The computer generates reactive forms algorithmically and stochastically. Finally, the performer is constantly making creative decisions and responding to sound, light, and perhaps even the audience. We believe that accepting and integrating creative input from all of these sources leads to an artistic result with many interconnected layers and structures.<sup>27</sup>

### **R. Luke Dubois**

*Moments of Inertia* consists of twelve movements written for violin and electronics, integrating video and animation with the intent to explore the concept of inertia as an interpersonal idea rather than a purely physical concept within everyday life, contemplating the efforts we place upon resisting any kind of change.

"...imagine if we could discuss this phenomenon as a social one. How much effort does it take to change your life's direction? How do you calculate the inertia of your relationships or your career? How do you determine the effort required to move across the country to be with someone you love, or move three barstools down to talk to someone you find attractive? What is the resistance value of making eye contact, or of saying you're sorry? Even in a society that prides itself on mobility, we all have our moments of inertia."<sup>28</sup>

The score for this piece consists of a series of twelve works for violin and electronics written using algorithmic techniques derived from different mathematical equations in which moments of inertia

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<sup>27</sup> Dannenberg, *Critical Point*, 4

<sup>28</sup> R. Luke Dubois, Todd Reynolds, "Moments of Inertia—New Radio and Performing Arts Meet the Composer", [archive.turbulence.org](http://archive.turbulence.org)

play a role.<sup>29</sup> Each movement focuses on a different subject, such as a coin, people skating across an ice rink, people jogging, a bike, flags, hands and close ups of four people (each person is allocated their own movement).

The relationship between the music and visuals varies from a recognizable one-to-one correlation to abstract, convoluted patterns. Every movement shares similar techniques, such as looping and delays in the violin and lines, dots and color manipulation in the animation and high speed frame rate video footage. This creates an overarching sense of continuity throughout the twelve movements, allowing the audience to immerse themselves within an established performative space, open to intricate changes and subtle variations. Although the music and visuals at times heighten in intensity through denser textures or higher degrees of contrast, there is never a sensation of haste within this multi-layered exploration of inertia.

The subject of the first movement is a spinning coin. On first observation, the violin score for this movement appears deceptively simple (see Figure 1). Once the looping is introduced, the polyrhythmic nature of the music becomes pronounced.

**Moments of Inertia: 1** R.1

♩ = 120

**Figure 1.** Excerpt from R. Luke Dubois’ Moments of Inertia, Movement 1. Loops are represented by boxed numbers.

<sup>29</sup>R. Luke Dubois, Todd Reynolds, “Moments of Inertia”

This rhythmic tension corresponds to the visuals. There is a clear sense of rhythmic unity between the movement of the coin and the ostinati in the violin part. There is also a sense of a close relationship between the different layers in the music and the effects in the visuals (lines and dots) and how these effects are being manipulated. For instance, a tremolo in the violin corresponds to many lines appearing at once in the visuals. Or, a sharp attack from the violin bow causes a dot or a line to pop out in the visuals. The more subtle relationships are created through the overall development of the musical arc and the narrative of the visuals. Dubois states that the music is composed using specific algorithms, however, without possessing the knowledge and understanding of this data, it can be said that the music moves through various levels of consonance and dissonance, that the texture alternates depending on the number of loops, the range of pitch and dynamics, and expressive techniques, and that although this piece is written for solo violin, the rigid rhythmic structure acts as a foundation for the entire movement.

The narrative in the visuals builds along with the music. At first, a simple relationship is established between the coin movement and the violin rhythms, then lines and dots start to appear and distort along with the changes in the music. Midway through the movement, a hand appears to spin the coin again, after which the black and white visuals are painted over with subtle orange lights. This is a climactic moment in the movement. The final dramatic effect is created when the music stops, and we watch the coin spin until it stops. The absence of music and visual effects creates a sense of drama, as well as a conclusion to the movement. This is an interesting approach to narrative development, as it is driven and developed by the movement of a spinning coin. A simple and familiar visual concept to most people, Dubois explores this from a musical perspective. The human hand creates the coin's initial impetus, after which its elasticity within resistance to change are captured and manipulated to develop a musical and visual narrative.

The other vital element to this and the other movements is the way the video is shot. "The video for the work was created using high-speed (300fps) video of people and things in motion. The first

six movements show various human-motivated actions at 1/10th their normal speed...<sup>30</sup> The stretched out, slowed down video footage produces a mesmerizing sensation of a captured moment in time. Dubois zooms in on the movements of his subjects and creates a narrative out of the efforts placed upon their changes in flow and direction, musically and visually.

In the second movement, the relationship between the music and visuals appears less obvious and more fluid. The integration of the video footage, visual effects and the music combine to create three independent yet cohesive voices. There are clear correlations, such as the slow tempo of the violin part and the decelerated movements of the ice skaters, but unlike the first movement, there is not one clear relationship between video and audio. The harmonic language in the violin score is based on layers of dissonant intervals such as minor ninths, major sevenths, tritones, whole and half steps, layered over tied whole notes and dotted half notes within a distance of perfect fourths and fifths, used as drones. The constant crescendos from piano to forte also create a feeling of uneasiness. This is an interesting technique in regards to the narrative, as all we see is a footage of people ice skating. The visual effects also add to the narrative, but again, unlike the first movement, seem to be more independent and have greater variance. There is a lot more variation in color and texture, ranging from subtle arrays of straight lines and small dots to completely distorted images. Tension and narrative are also created in moments where the music seems to have paused on one chord, yet the image keeps moving, and vice versa, all elements reacting to change in their own fluid way.

Movements seven, eight, ten and twelve all focus in on the faces of four different people. The final one being Dubois himself. These four movements are strikingly different in compositional and visual approaches.

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<sup>30</sup> R. Luke Dubois, "Projects-Moments of Inertia", *ludedubois.com*

The last six movements focus on four human subjects in everyday conversation, focusing on their facial and physical gestures. During the performance, the violinist's pitch, amplitude, and performance style is analyzed by the computer to re-animate the footage by scrubbing it at different speeds and layering in different overlays that illustrate the optical flow characteristics of the video, i.e. how these objects in motion are actually moving.<sup>31</sup>

Movements eight and ten both have female subjects. However, the representation of the two women is contrasting in both the score and the visual effects. Movement eight is a loud, fast tempo, energetic piece, with very busy visual effects, whereas movement ten is serene and reflective. The actual video footage of the two women is not that different. Both are shot at medium distance and display similar body language. The music and effects work to represent a difference in intent, personality and emotion. The same contrasts and similarities appear in movements seven and twelve. Movement seven being energetic and movement twelve being reflective. Since the variations in animation within these movements are controlled by the violinist's performance and its computer analysis, the narrative can be slightly altered within each live performance through changes in amplitude and performance style (since pitch is notated, this element would remain consistent throughout each performance, unless an error occurs). This is a very interesting and effective tool for narrative development, as the parameters set for triggering change are not constricting the violinist's performance, but instead are enabling them to push the limits of their interpretation each time the piece is played.

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<sup>31</sup> R. Luke Dubois, "Projects-Moments of Inertia", *lucedubois.com*

## **Conclusion**

The four artists discussed in this paper have all made significant contributions to narrative-driven performative art that integrates visuals, music and technology. Within their intermedia works lies a common ideology of clarity over abundance or excess, which strengthens their creative intention and aids in a powerful connection with the audience, whether the message be simple or abstract. Despite their common methodology, their works remain dissimilar, which can be attributed to the uniqueness of each of their creative voices and serve as a source of inspiration for less established intermedia performative artists. The analysis of the works in this paper has had direct as well as subtle influence on my own work, helping me break down complex, abstract ideas into concise and meaningful elements ready for implementation within my creative tools: improvisation, composition, and technology.

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