

# DVD Program Notes

## Part One: Butch Rován, Curator

### Curator's Note

The eight works brought together for this DVD represent very different approaches to creating and performing with interactive video. In each performance the visual image is malleable material, sculpted in response to the gestures of an individual performer or other participants. Through the intervention of custom software and/or hardware, human movement is translated into sound and image in unique and surprising ways.

In *MindBox*, a collaboration among Humatic, Roberto Zappalà, and the Institut de Recherche et Coordination Acoustique/Musique (IRCAM), the metaphor of the slot machine provides the interface for individual players to create instant mash-ups of Zappalà's movement. Both a game and a performance instrument, *MindBox* invites viewers to become participants in a virtual choreography, recombining Zappalà's movement and sound into infinitely new patterns.

Pattern from process is the impetus for Louise Harris's *intervention:coation*. Seeking to create a "cohesive whole," Harris maps subtle processes onto her sounds and images, creating a nuanced performance environment in which what is seen and what is heard bear equal weight. Her symbiotic system reveals the fragile interdependencies of perception and performance.

The ongoing collaboration between vade (image) and Aerostatic (sound) is captured to stark effect in *Transmissions from a Dying Planet*. An excerpt from a longer narrative, this dystopian work probes the man-nature-technology divide and its myriad failed solutions. Here the "transmissions" are detritus casting

about a post-apocalyptic landscape, hypothetical data fragments reassembled into an old/new media artifact.

A similar fascination with the artifact informs Alex Dupuis's *All Hail the Dawn*. In performance, Dupuis guides the behavior of a sensitive feedback network that comprises a light-sensitive analog oscillator, audio processing, and audio visualization. By projecting the generated image back onto the light sensors, he cajoles his system into ever-changing states of resonance and chaos—visual and sonic artifacts of his physical presence in the system.

In *Alchimia* the duo Noisefold (David Stout and Cory Metcalf) position themselves as hypothetical zookeepers of a menagerie of "synthetic organisms" that inhabit—as well as create—the visual and sonic field. The performers negotiate an intricate system of infrared sensors, microphones, and controllers to nudge data feedback and algorithmic processes in real time. The emergent behavior of *Alchimia* interestingly suggests both the dystopia of *Transmissions from a Dying Planet* and the contained chaos of *All Hail the Dawn*.

At the center of Butch Rován's *of the survival of images* is the captivating onscreen presence of dancer Ami Shulman. Through still images and high-speed video that reveal the intricate details of her movement, the dancer controls the unfolding scene while also being controlled by the performer. Rován's custom-made GLOBE controller directs the virtual choreography of the dance, his physical gestures determining the real-time synthesis of both sound and image. The movement gives way at points to a breathless chain of still images, like surviving fragments of a gesture yet to come.

A female presence—in this case, the voice of Lesley Flanigan—also dominates *Bioluminescence*, a collaboration between Flanigan and

Luke Dubois. Dubois is her virtual interlocutor, capturing Flanigan's vocal improvisations during performance and translating them into an evocative audiovisual landscape through extensive computer processing. Sitting face to face across a table, Flanigan and Dubois's understated performance weaves a compelling visual and sonic atmosphere in what they describe as an "intimate conversation between two people."

Kyle Evans and James Connolly create an intricate audiovisual conversation in *Cracked Ray Tube*. Their project subverts television technology with the help of hacked CRT computer monitors, feedback networks, and exposed circuitry that begs to be touched. Voiding all warranties, they reanimate the carcasses of discarded tech to give voice to a new sonic and visual beast. From the seemingly simple resources of RGB signals, their exploration of the inner workings of the TV exposes the both complexity and expressivity of analog circuitry.

1. ***MindBox*—Humatic (Christian Graupner, inventor, media artist, director, composer; Nils Peters, system developer/software artist); Roberto Zappalà, performer/choreographer; Norbert Schnell, interactive music/sound design**

*MindBox* is an audience reactive video-and-music triptych and can be operated with the lever and buttons of a modified one-armed bandit. Originally created as a stand-alone media installation singing songs from the swamps of "Casino Capitalism & Total Body Control," *MindBox* in its final development phase turned out to be an intuitive audiovisual musical instrument.

doi:10.1162/COMJ.e.00198

Figure 1. *MindBox* in performance, featuring Roberto Zappalà.

Based on the Humatic Re-Performing Musical Characters concepts (H.RPMC), the media slot machine allows for musical reinterpretation of sounds and images giving access to expressive parameters while preserving the character of the pre-recorded performance material. The player can let the instrument autonomously generate variations but take over the audiovisual and musical control at any time while staying in a consistent and continuous flow.

Through a series of working sessions Graupner and Zappalà have created a vocabulary of beatboxing-like movements and sounds that now fuel the re-performance machine.

*MindBox's* design is dominated by a "pimped" classical fruit (slot) machine. With an easy-to-learn tangible interface including the lever, multiple push buttons, blinking lights, and giant displays, the *MindBox* appears as a headstrong sculpture offering various interpretation levels—complex but not complicated. The direct "body contact" with the "Man in the Box" seems to break barriers between players, performers, and audience.

The *MindBox* project has been created by Humatic through collaboration with IRCAM and the Compagnia Zappalà Danza. *MindBox* is produced by Humatic Berlin in cooperation with TMA Hellerau, BEK (Bergen Centre for Electronic Arts, Norway) and Compagnia Zappalà Danza. The *MindBox* technology is based on HUMASystem and the FTM and related libraries for Max/MSP.

**Roberto Zappalà** is the artistic director and main choreographer of Compagnia Zappalà Danza, which he founded in 1989. The company is today one of the most important Italian dance companies. In 22 years of activity of the company,



Roberto Zappalà has created more than 30 choreographies, presented all over Europe and in Central and South America, the Middle East, and South Africa. For his creations, the choreographer often deals with articulated projects, including: *Corpi incompiuti* (2002–2007); *Instruments* (2007–2009); and *re-mapping sicily*. Among his creations for the company, *Pasolini nell'era di Internet* was selected for BIG Torino 2000, and *A.semù tutti devoti tutti?* was awarded the Danza & Danza Prize 2010 for best Italian production.

Compagnia Zappalà Danza has distinguished itself for the availability of a wide and articulated repertory, a result of the synergistic and prolific work of Roberto Zappalà and the dramaturge Nello Calabrò, who, over the past ten years, have traced together a project-based path in continuous expansion, allowing the realization of productions of different typologies, most of them with live music.

Zappalà has collaborated with companies such as Balletto di Toscana, the Scuola di Ballo of the

Teatro alla Scala of Milano, the Swedish company Norrdans, the Stichting Theaterwerkplaats Generale Oost (Netherlands), the Goteborg Ballet in Sweden, and more. For more information, consult the company Web site ([www.compagniazappala.it/en/compagnia\\_zappala.danza/roberto\\_zappala](http://www.compagniazappala.it/en/compagnia_zappala.danza/roberto_zappala)).

In his latest work the Berlin-based artist **Christian Graupner** has been exploring the practices and myths around popular and contemporary music, combining multi-channel video and sound with partly machine-partly user-controlled "humatic" interfaces and mechanisms. His recent sculptural/media work includes gambling machines and Asian mojo figures, feedback guitars, and beatbox-like vocal and dance performances. In processing visual and audio material, he not only uses and adapts available computer programs but also uses the developments coded by his project collaborators. Graupner is a composer, visual artist, and producer. His wide-ranging earlier works were made up of drawings, paintings, and experimental electronic music, mostly published on LPs and CDs, as well as in films and radio plays under the pseudonym VOOV (Violation of Ordinary Values). With his works such as *2Lives Left* and his newest projects *MindBox* and *Don't Dance*, he is keeping alive his conceptual platform "Automatic Clubbing." In 2000, he formed the independent artist group and production company Humatic Ltd. together with Nils Peters who develops software tools for artists working in a variety of media forms. Graupner has been a guest artist at Zentrum für Kunst und Medientechnologie (ZKM), Karlsruhe. His work has been shown and performed worldwide. For more information, consult the Humatic Web site ([www.humatic.de/cv/cg.html](http://www.humatic.de/cv/cg.html)).

Born in 1966, **Nils Peters** is a freelance programmer and artist living in Berlin. Starting off in music in the 1980s, his work has taken him to fields such as installations, theatre, and performance, mostly involving explorative use of (media) technology. He has been working with a number of machinery art ensembles (a.o. Dead Chickens, BBM), combining music and robot sequencing, and has, as a founding member of Humatic, developed a patented real-time multimedia sequencing environment and several software libraries and programs used in various fields from art to medical technology to sound recording.

Peters has received several grants for media, theatre, and installation projects, and has received prizes for catalogues accompanying those projects. His musical work has recently been published by the Academy of Arts, Berlin. For more information, consult the following Web sites: [www.deadchickens.de](http://www.deadchickens.de) or [www.humatic.de](http://www.humatic.de).

**Norbert Schnell** is a researcher and developer on the Real-Time Musical Interactions team at IRCAM, focusing on real-time digital audio processing techniques for interactive music applications. He studied Telecommunications and Music in Graz, Austria, and worked as programmer and sound designer with the Musiklabor Wien. At IRCAM, he initiated and participated in numerous international research and development projects as well as artistic works in the field of interactive audiovisual installations, music pedagogy, and sound simulation. From 2002 to 2007, he coordinated the Real-Time Applications and Real-Time Musical Interactions team at IRCAM. He chaired the 6th International Conference on New Interfaces for Musical Expression (NIME) in 2006 and held the DAAD Edgar Varese Guest Professorship for

Electronic Music at the Technische Universität Berlin in 2007. In 2013 he was invited as keynote speaker to the International Conference on Tangible, Embedded, and Embodied Interaction (TEI).

## 2. *intervention:coaction*— Louise Harris

This work is part of an ongoing investigation in bringing the processes I have evolved through my fixed media audiovisual compositions into a live performance context.

*intervention:coaction* is a live audiovisual performance work (utilizing processing in PureData communicating through OSC). The intention is to create a symbiotic system, in which live decision-making by the performer impacts on both the audio and visual components of the work, but also in which both the audio and visual components can interact with one another, causing behaviors that are not directly controlled by the performer.

One of my primary concerns in constructing audiovisual compositions to date has been to create work which exhibits no sense of media hierarchy, i.e., in which the viewer is not thinking about what the audio is doing to the video, or vice versa, but rather perceiving the work as a cohesive audiovisual whole. Through bringing my work out into a live performance environment, involving myself as a direct physical presence in the work, I am forced to negotiate these ideas in different ways. How can I become a part of this cohesive audiovisual whole? Should I be visible at all? If I am not visible, why would I want to perform this work live as opposed to exhibiting a fixed piece? . . . and so on. These questions are proving challenging (and interesting!) to negotiate as this work progresses.



**Louise Harris** is an electronic and audiovisual composer. She is currently a lecturer in music at Kingston University, London, but in September 2013 took up the post of Lecturer in Sonic and Audiovisual Practices at the University of Glasgow.

Harris specializes in the creation of audiovisual relationships utilizing electronic music and computer-generated visual environments. Her audiovisual work has been performed and exhibited nationally and internationally, including: Sound and Music Expo, Leeds, UK (2009); BBC Big Screen, AV Festival, Newcastle, UK (2010); Musica Viva Festival, Lisbon, Portugal (2011), where her work, *sys.m1*, was the recipient of the World Prize in the Electroacoustic Composition Competition, Musica Viva 2011; International Computer Music Conference (ICMC), Huddersfield, UK (2011); New Adventures in Sound Art (NAISA) SOUNDplay Festival, Toronto, Canada (2011); MANTIS Festival, Manchester, UK (2012); Strasbourg Museum of Modern Art, Strasbourg, France (2012); Pikel Festival, Bergen, Norway (2012); Sonica Festival, Glasgow (2013); and the International Motion Festival, Cyprus (2013).

Harris is a strong advocate of open source technology. Her particular

Figure 3. *Aerostatic and vade.*



research interests are the nature of the audio/video relationship in abstract audiovisual composition and the creation of self-sustaining and symbiotic audiovisual systems.

### 3. *Transmissions from a Dying Planet*—vade (video), aerostatic (sound)

Exploring the relationship of man–nature–technology and the problem-solving paradigms that are evolving continuously in the modern world, it is a grim realization that most solutions, in their relationship to the existing natural ecosystem, are negligent at best. *Transmissions from a Dying Planet* embodies the results of this fatal paradigm.

*Transmissions from a Dying Planet* is an excerpt from a larger narrative that is rooted in a distant possible future, where all that remains of the tools and the toolmakers are the free-floating detritus, the fragments

of transmissions bouncing around the ionosphere. These transmissions are sifted and parsed by an intelligence, in an attempt to make sense of the past and understand the present.

**Anton Marini (vade)** is a video performance artist, programmer, and video engineer. His artwork focuses on improvisation and real-time manipulation of video. He plays, bends, rips, tears, shreds, morphs, molds, glitches, and synthesizes pixels to form new visual experiences.

A former researcher-in-residence at New York University's Brooklyn Experimental Media Center, he has taught at Parsons/New School Design and Technology Department and performed at many new media and video festivals around the world. He also designs open source tools to help facilitate the video performance medium.

Based in Brooklyn, New York, composers/performers **Terry Golob and Michele Darling (aerostatic)** have been working with music and

technology since 2004. Utilizing artifacts of sound generated by digital and analog processing in conjunction with a variety of interactive technologies, they compose a hybrid style of electronic music for films, installations, and music performance.

Aerostatic's music has been featured in venues, museums, festivals, and performances in the United States, Argentina, England, Austria, Italy, and Australia. Aerostatic's Music and Sound Design clients include Sesame Street (Sesame Workshop), Moshi Monsters, HBO, The Learning Channel, Four Kids Entertainment, and the Criterion Collection.

### 4. *All Hail the Dawn*—Alexander Dupuis

*All Hail the Dawn* uses simple graphical and spatial gestures to construct an audiovisual composition within a cross-modal feedback environment. The instrument, a custom-built light-sensitive analog oscillator, is run through real-time audio processing and visualization software. The graphics are then projected back onto the instrument and performer, creating an evolving audiovisual feedback environment sensitive to slight changes in the instrument's spatial orientation, the state of the visualizations, and the performer's manipulation of the instrument's controls. Through the tight temporal linking of the sound and image, the performer manipulates and guides audiovisual behaviors and patterns, moving through nodes of resonance and chaos.

**Alexander Dupuis** is a composer, animator, media artist, and performer. His work aims to develop and explore applications of graphics in musical contexts: as interactive scores, as audiovisual instruments,

Figure 4. Alexander Dupuis.



and as musical elements in their own rights. Through the use of real-time animations, visualizations, and projections, he develops visual methods for structuring and informing musical composition, experience, and performance. He performs as a guitarist, as well as with instruments of his own design, and has performed with his custom audiovisual systems in Europe, Canada, and the United States. He received his MA in Digital Musics from Dartmouth College in 2012.

##### 5. *Alchimia*—NoiseFold (David Stout, Cory Metcalf)

*Alchimia* is a live cinema work that draws equally from the visual and sonic arts. This networked duet explores the use of infrared sensors, microphones, and MIDI controller instruments to animate an evolving matrix of virtual 3-D forms, which are imbued with life-like aesthetic properties. The project is a collaborative effort created by composer-artist-performer-programmers David Stout and Cory Metcalf.

Figure 5. NoiseFold in performance.



Situated at the nexus between the modernist tradition of visual-music and current transdisciplinary explorations fusing media art and science, *Alchimia* integrates multiple digital techniques including real-time 3-D animation, mathematic visualization, recombinant nonlinear database, artificial life simulation, image to sound transcoding, complex data feedback structures, and algorithmic video processes used to generate both sonic and visual surfaces, skins, and textures. In *Alchimia* the 3-D forms are capable of emitting their own sounds resulting in a surprising array of sonic expressions induced by the shape, size, luminance, and movement of the visual object itself. The kinetic behavior of these “synthetic organisms” includes morphogenic expansion and contraction controlled by the hand gestures of the performers or automated by a variety of virtual circuit models including low frequency oscillators and nonlinear feedback generators. *Alchimia* is unique in that the sound is not an illustration of visual properties but rather the direct and simultaneous result of manipulating the visual field. To further complicate the often unpredictable

behavioral properties, the organisms or avatars are programmed to be sonically sensitive to each other and to external acoustic inputs initiated by the performers to evoke a wide range of “life-like” recursive audio, visual, and kinetic phenomena. The result is a theater of alchemical transformation and emergence existing within an intricate cybernetic system. The generative performance instrument utilized in *Alchimia* makes unique demands on the music-video performers, who find themselves containing or reining in chaotic behavior as often as nudging or stimulating their independent-minded avatars to “mutate, dance, and sing.” The endlessly folding objects, synthetic life forms, or theoretical geometries defy easy anthropomorphic categorization. Organic images of cellular life, nerve networks, serpentine colonies, collapsing architectures, plant structures, teeth, bone, and explosive phallic dystopias may come to mind.

**NoiseFold** is the collective identity of David Stout and Cory Metcalf, who work at the intersection of digital music, experimental cinema, and the

Figure 6. Cory Metcalf.

Figure 7. David Stout.

visual arts. The pair began their seminal work in Santa Fe, New Mexico, a famed art center and lesser known as the birthplace of Artificial Life (A-Life). NoiseFold, in a word, amalgamates adjective, noun, and verb. The name can conjure an immediate reference to noise music with its loud, near unbearable volumes, radical explorations of extreme frequencies, disjunctive ruptures, glitches, and wall-of-sound dynamics. Metcalf and Stout do not discount these memes; however, their interests are larger. The project exists as a fold or group that performs live data - folding processes that reference both virtual origami and the concept of protein folding. NoiseFold acknowledges noise as the field of all possibilities. Noise as *prima materia*—an alchemical concept sometimes attributed to Aristotle, *prima materia* can be thought of as an elemental formless state. In this work, noise exists simultaneously as both a concept and a tangible material. Noise is manifest in various mediums, as a dynamic visual or sonic field, a data stream, as collective cultural expression, as particle bombardment, and as a chaotic condition of life. NoiseFold performed its world premiere at the Festival Internationale d'Art Video in Casablanca, Morocco (2006). Performances, which include the UNESCO Creative Cities Summit, New York Electronic Arts Festival, Interactive Futures in Victoria, BC, REDCAT in Los Angeles, TEDx at the Denver Art Museum and "Chinati Weekend" in Marfa, Texas, have garnered critical praise and a growing international audience. NoiseFold routinely performs in wildly different contexts, from concert halls, art museums, and galleries, to planetariums, rock venues, and even botanical gardens. This ability to cross generational, disciplinary, and cultural boundaries has enabled the artists to cultivate an expansive



audience eager to experience new cinematic and musical forms.

**Cory Metcalf** is a moving-image and sound artist, programmer, and performer. Over ten years of experience with visual programming have given him the tools to create complex interactive software environments. Metcalf's performance works, real-time media systems, and responsive installations question the primacy of the human perspective, the anthropocentric Western rational mind, and linearity of progress, arguing for deeper cultural investigation into new ways of knowing and the re-evaluation of those forgotten, dismissed or discarded. His interest in bridging the old and new is evidenced in works such as *Signature Sound* (2012), a steampunk divination machine combining astrology, projection mapping, and keyboard input to calculate, distill, and bottle the participants' "virtual essence." Metcalf's recent focus is on ethnobotany and ethnomusicology in South America, drawing from the telling of history in the Andes through *Quipu*'s, a pre-Incan data system made up of knotted cords, to *Icaros*, the healing songs of Peru believed to have been taught to humans by plants. Metcalf is co-founder with David Stout of the



interactive media performance group, NoiseFold, which explores the use of real-time 3-D data visualization and complex data feedback programs to model synthetic ecologies based on genetic and behavioral processes in living systems.

**David Stout** is a visual artist, composer, and performer exploring cross-media synthesis and interdisciplinary approaches to new genres bridging the arts, design, and sciences. He holds an inter-arts MFA from the California Institute of the Arts where he studied with Ed Emshwiller, Jim Pomeroy, Barry Schrader, Bill Viola, and Gene Youngblood. His award winning works include live cinema performance, interactive video installation, electroacoustic music scores, and immersive telematic video events that emphasize multi-screen projection as an extension of performer, audience, and architecture. Since 2002, he has worked closely with creative partner Cory Metcalf to examine the aesthetic possibilities for evolutionary generative systems, artificial life networks, and simulation environments. The pair, who began their seminal collaboration in Santa Fe, New Mexico, are renowned as founding members of the critically acclaimed interactive

media ensemble, NoiseFold. David's ongoing collaborations with instrumentalists, computer programmers, composers, and filmmakers include recent projects with cellist Frances-Marie Uitti (Netherlands), guitarist Janet Feder (USA), and early music artist Anna Stegmann (Netherlands/Germany). Stout previously founded the MOV-iN Gallery and the Installation, Performance & Interactivity project (IPI) at the College of Santa Fe. He is at present the coordinator for the Initiative for Advanced Research in Technology and the Arts (iARTA) at the University of North Texas located in the Dallas metropolitan area, where he holds a joint appointment in the College of Music, Division of Composition Studies, and College of Visual Art and Design, Studio Art-New Media.

**6. of the survival of images—  
Butch Rován (music, video),  
Ami Shulman (dance)**

We shall never reach the past unless we place ourselves within it. Essentially virtual, it cannot be known as something past unless we follow and adopt the movement by which it expands into a present image, thus emerging from obscurity into the light of day.

Henri Bergson,  
*Matter and Memory*

*of the survival of images* belongs to a larger ongoing work for music, video, and the moving body called *Studies in Movement*. It draws inspiration from Henri Bergson, whose meditations on time, matter, and memory offer a philosophical framework for the multimedia experience. The piece features the GLOBE, my custom wireless music controller, an instrument I designed to capture performance

gestures in order to control real-time synthesis and video. The video presents the image of my longtime collaborator, the South African dancer Ami Shulman. Through still images and high-speed video that reveal the intricate details of her movement, the dancer controls the unfolding scene while also being controlled by the live performance. My performance onstage and her performance onscreen form a visual counterpoint that draws out, in sensory form, the ideas contained in Bergson's text.

**Butch Rován** is a media artist and performer on the faculty of the Department of Music at Brown University, where he co-directs MEME (Multimedia & Electronic Music Experiments @ Brown) and the PhD program in Computer Music and Multimedia. Prior to joining Brown he directed CEMI, the Center for Experimental Music and Intermedia, at the University of North Texas, and was a *compositeur en recherche* with the Real-Time Systems Team at IRCAM in Paris. Rován worked at Opcode Systems before leaving for Paris, serving as Product Manager for MAX, OMS, and MIDI hardware.

Rován has received prizes from the Bourges International Electroacoustic Music Competition, first prize in the Berlin Transmediale International Media Arts Festival, and his work has been performed throughout Europe and the USA. Most recently, his interactive installation *Let us imagine a straight line* was featured in the 14th WRO International Media Art Biennale, Poland.

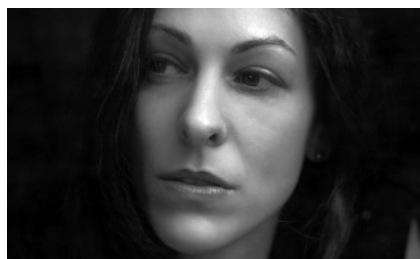
Rován's research includes new sensor hardware design and wireless microcontroller systems. His research into gestural control and interactivity has been featured in *Resonance* (IRCAM), *Electronic Musician*, *Computer Music Journal*, *SoundArts* (Japan), the CD-ROM *Trends in*



*Gestural Control of Music* (IRCAM 2000), and in the book *Mapping Landscapes for Performance as Research: Scholarly Acts and Creative Cartographies* (Palgrave Macmillan 2009). For more information, consult Rován's Web site ([www.soundidea.org](http://www.soundidea.org)).

Performer, educator, artistic advisor, and rehearsal director, **Ami Shulman** trained in the performing arts in South Africa. She danced with Compagnie Marie Chouinard and Compagnie Flak for several years and has collaborated with videographer Butch Rován, most prominently on the interactive installation piece, *Let us imagine a straight line*. Shulman has assisted in setting new and existing choreographic works for Ballet BC and the Goteborg Operans Danskompani, and was an assistant choreographer for the Cirque Du Soleil's production of *One*. Based in Montreal, Shulman teaches contemporary technique and has taught at Juilliard, Rotterdam Danse Academy, National Theatre School of Canada, Jacob's Pillow, Cirque Du Soleil, Alvin Ailey School,

Figure 9. Ami Shulman.



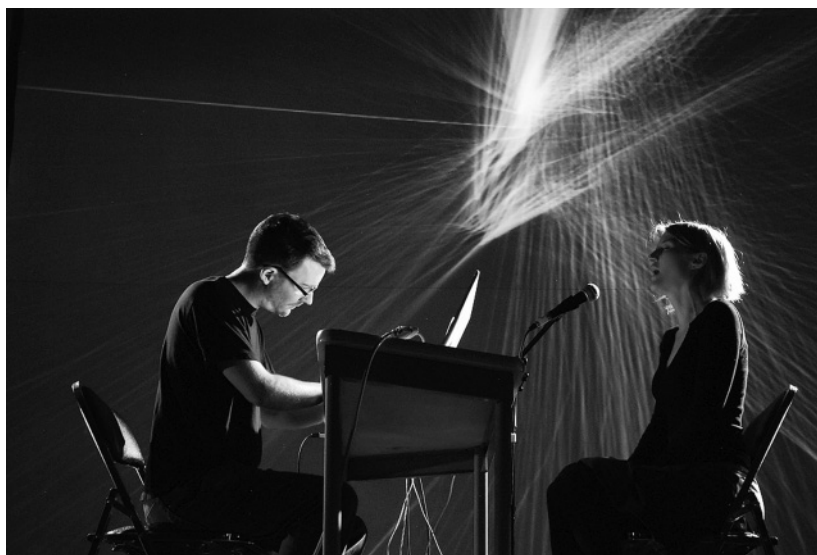
L'École de Danse Contemporaine de Montréal, Ballet Divertimento, and Springboard Project, among others. Ami is the touring artistic director for Compagnie Marie Chouinard and she is the artistic advisor to Jose Navas. She has been a movement consultant for various theatre productions including the Grand Theatre Junction's *Lucy Lost Her Heart*, Repercussion Theater's *Macbeth*, and Yael Farber's *The Crucible* and *Kadmos*. Shulman is a Feldenkrais practitioner and she continues to tour extensively in the various aspects of her expertise in movement and art.

### 7. *Bioluminescence*—Luke DuBois (real-time video and sound), Lesley Flanigan (voice)

I have been performing since 2006 in a duet with vocalist Lesley Flanigan. The project, dubbed *Bioluminescence*, consists of a performance between Flanigan and myself. Meditating on the female voice, the project consists of improvisations between the live singer and a bank of samples captured in situ during the performance, which can be transposed, re-arranged, and stretched by myself at the computer. Real-time visualizations of the sound are projected overhead. Our artist statement, in part reads:

The voice has a unique role in our musical culture, bridging the

Figure 10. *Bioluminescence* in performance.



linguistic and the semiotic in a way that transcends instrumentality through a highly personal embodiment of musicianship. The recorded female voice, in particular, has been the subject of academic investigation following its role in aesthetics (Adorno), cinema and psychology (Silverman), and feminist theory (De Laurentis). In electroacoustic music, the voice has a privileged place in our canon, providing a boundless source of material for sonic exploration from the tape works of Berio, Dodge, and Lansky through the composer-performer repertoires of Joan LaBarbera and Pamela Z. Our collaboration centers around an extensive investigation of the possibilities of the improvised voice in tandem with electroacoustic processing, focusing on the possibilities of detemporization and memory evoked through the use of looping, time-stretching, and spectral processing. The interplay between the two performers (one singing, one

processing) takes the metaphor of the voice as impulse and the computer as filter and creates a dense palette of evocative sounds and images derived entirely from the voice of the singer.

The project runs on custom software that I have written that allows me to use the laptop as a live sampler to capture Flanigan's voice into "banks" of four short phrases each, which can be triggered in any sequence at variable speed and pitch, entirely by typing on the computer keyboard. In performance, this allows us to perform entire pieces while maintaining eye contact, creating the illusion of an intimate conversation between two people.

**R. Luke DuBois** is a composer, artist, and performer exploring the temporal, verbal, and visual structures of cultural and personal ephemera. He holds a doctorate in music composition from Columbia University, and has lectured and taught worldwide on interactive sound and video



Figure 11. R. Luke DuBois.



performance. He has collaborated on interactive performance, installation, and music production work with many artists and organizations, including Toni Dove, Todd Reynolds, Jamie Jewett, Bora Yoon, Michael Joaquin Grey, Matthew Ritchie, Elliott Sharp, Michael Gordon, Maya Lin, Bang on a Can, Engine 27, Harvestworks, and LEMUR, and was director of the Princeton Laptop Orchestra for its 2007 season.

Stemming from his investigations of “time-lapse phonography,” his work is a sonic and encyclopedic relative to time-lapse photography. Just as a long camera exposure fuses motion into a single image, his projects reveal the average sonority, visual language, and vocabulary in music, film, text, or cultural information. Exhibitions of his work include: *Institut Valencià d’Art Modern* (Spain); 2008 Democratic National Convention (Denver, Colorado); Weisman Art Museum (Minneapolis, Minnesota); San Jose Museum of Art; National Constitution Center (Philadelphia, Pennsylvania); Cleveland Museum of Contemporary Art; Daelim Contemporary Art Museum (Seoul, Korea); 2007 Sundance Film Festival; Sydney Film Festival; Smithsonian American Art Museum; and PROSPECT.2 New Orleans (Louisiana). His work and writing have appeared in print and online in the *New York Times*, *National Geographic*, and *Esquire*.

An active visual and musical collaborator, DuBois is the co-author of *Jitter*, a software suite for the real-time manipulation of matrix data developed by San Francisco-based software company Cycling’74. He appears on nearly 25 albums both individually and as part of the avant-garde electronic group The Freight Elevator Quartet. He currently performs as part of *Bioluminescence*, a duo with vocalist Lesley Flanigan that explores the modality of the human voice, and in *Fair Use*, a trio with Zach Layton and Matthew Ostrowski, that looks at our accelerating culture through electronic performance and remixing cinema.

DuBois has lived for the last twenty years in New York City. He is the director of the Brooklyn Experimental Media Center at the Polytechnic Institute of NYU, and is on the Board of Directors of the ISSUE Project Room. His records are available on Caipirinha/Sire, Liquid Sky, C74, and Cantaloupe Music. His artwork is represented by bitforms gallery in New York City.

**Lesley Flanigan** is an experimental electronic musician living in New York City. Inspired by the tangible elements of electronic sound, she builds her own instruments using minimal electronics, microphones, and loudspeakers. Performing these instruments alongside traditional instrumentation that often includes her own voice, she creates a kind of physical electronic music that embraces both the transparency and residue of process—sculpting sound from a pallet of noise and subtle imperfections.

ArtsCriticATL writes, “Flanigan’s performance comes loaded with philosophical ideas, often blurring the boundaries among music, noise, sculpture, and performance art.” Drawing from her background in

Figure 12. Lesley Flanigan.



sculpture and music, she built her first loudspeaker feedback instrument, *Speaker Synth*, in 2007. She continues to build similar systems crafted from raw speaker cones, contact microphones, and wood. Playable by hand, her instruments afford a delicate tangibility to electronic sound, and, like a sculptor working with clay, she layers tones of speaker feedback and her own voice with the remnants of amplification, shaping sound as a fragile mass.

In addition to her solo work, Lesley Flanigan performs as a member of *Bioluminescence*, a collaboration with video artist and composer R. Luke DuBois. Exploring the modality of human voice, DuBois records and rearranges Flanigan’s voice and image in real time to shape an immersive environment of video and sound. She has wielded a soldering iron as a guest performer in the circuit constructing noise group, the Loud Objects, and collaborated with Stefanie Wuschitz of Mz. Baltazar’s Laboratory to teach interactive art workshops for women artists. She has been an artist-in-residence at LEMUR (Brooklyn) and WORM (Rotterdam).

Her work has been presented at venues and festivals internationally, including *Sonar* (Barcelona), the Guggenheim Museum (New York), ISSUE Project Room (Brooklyn), *The Stone* (New York), *TransitioMX* (Mexico City), *CMKY Festival* (Boulder, Colorado), the Roskilde Museum of

Figure 13. *Cracked Ray Tube* in performance.



Contemporary Art (Denmark), and .HBC in Berlin. Lesley Flanigan studied sculpture at the Ringling College of Art and Design, and received a Masters in Art Technology from the Interactive Telecommunications Program (ITP) at New York University.

### 8. *Cracked Ray Tube*—Kyle Evans and James Connolly

*Cracked Ray Tube* is a collaborative hardware hacking project by artists Kyle Evans and James Connolly. The project creates a synchronized audio/video environment self-generated by the feeding back of communication networks of two obsolete technologies, analog televisions with their video transmitters, and CRT computer monitors and their VGA video signals. The red, green, and blue video signals of the VGA cable are processed and fed back through a sound mixer simultaneously generating

the audio and video information that is received, deciphered, and displayed by multiple computer monitors. Additionally, transmitted video is distorted through physical contact with handmade circuitry utilizing the capacitance of the human body as a control interface, and by electromagnetic flexing and folding of high-powered electron beams within modified televisions. The collaborative performance is partially done while crossing systems, sending VGA outputs to television inputs and vice versa (as well as the performers physically switching instruments mid-way through), which increases the plurality of audio/video material and the unpredictability of controls and results. Influenced by experimental media artists such as Nam June Paik, the project exploits the materiality of analog audio and video signals pronouncing the technology's intrinsically hidden yet vastly complex spectrum of sound, image, and color.

Figure 14. Kyle Evans.



Kyle Evans (MFA, The School of the Art Institute of Chicago) is a sound designer, computer musician, electronic instrument creator, and real-time video performer. Although his educational background was focused toward experimental music and sound art, his collective artistic work ranges from music technology development to multimedia installation. He has invented many electronic musical and video instruments ranging from studio-based synthesizers and performance-based computer interfaces to electronic modifications and augmentations to acoustic instruments. His performances and installations commonly explore the relation between modern and obsolete technologies, breaking and repurposing, and the dialogue between performer and technology. His recent work has focused on utilizing the hidden capabilities and potentials of the now obsolete CRT television and the process of effectively bringing new life to a dead technology. He has performed and presented his work throughout the United States and Europe including transmediale2013 in Berlin, the 2010 International Computer Music Conference (ICMC) in New York, the 2012 Dallas Video

Festival at the Dallas Museum of Art, Dimanche Rouge #19 in Paris, the 2012 Vancouver New Music Festival, the 2011 Milwaukee Avenue Arts Festival in Chicago, and the 2011 and 2012 GLI.TC/H festivals in Chicago. He won second prize in the Guthman New Musical Instrument Competition 2012 at the Georgia Tech Center for Music Technology for his collaborative project *Cracked Ray Tube*. His work has been presented in several publications including *Popular Science*, and *Hand Made Electronic Music* by Nic Collins.

**James Connolly** (BFA with Emphasis in Art History, Theory, and Criticism, The School of the Art Institute of Chicago) is a video and new media artist, writer, curator, and real-time audio/video performer living and working in Chicago. His videos have been screened at the GLI.TC/H festival in Chicago, the Floating World Animation Festival in Portland, Oregon, and the Townhouse Gallery in Cairo, Egypt. He has performed at the Critical Glitch Artware Category at Notacon in Cleveland, the GLI.TC/H festival in Chicago, the 2011 Version Festival at the Co-Prosperity Sphere in Chicago, the Guthman Musical Instrument Competition in Atlanta, the Vancouver New Music festival, and the Museum of Contemporary Art in Chicago. He is currently the Assistant Curator of the Roger Brown Study Collection, a special collection of the School of the Art Institute of Chicago.

## Part Two: Video and Sound Examples

This section of the disc features video and sound examples to accompany articles appearing in Volume 36 and Volume 37 of the *Journal*. Where examples contain more than one



element in succession, each individual element has been encoded as a separate chapter, so one may navigate forward and backward through the examples using the Next and Previous Chapter buttons on any DVD player or remote control. Alternatively, the examples will automatically play in sequence with a short pause between each.

### 1. Audio Examples to Accompany the Article “The Problem of the Second Performer: Building a Community Around an Augmented Piano” by Andrew P. McPherson and Youngmoo E. Kim (Volume 36, Number 4)

1. *The Masons of Heidelberg* by Daniel Shapiro, Movement I.
2. *The Masons of Heidelberg* by Daniel Shapiro, Movement II.
3. *Spectra of Morning* by Tony Solitro.
4. *Job* by David Carpenter.
5. *Intermezzo* by Daniel Fox.
6. *Play* by William Derganc.
7. *Fantasy* by Jeff Snyder, Excerpt 1.
8. *Fantasy* by Jeff Snyder, Excerpt 2.

### 2. Video Examples to Accompany the Article “Performing the Electric Violin in a Sonic Space” by Alexander Refsum Jensenius and Victoria Johnson (Volume 36, Number 4)

1. *Transformation*, 3 September 2010 performance, Norwegian Academy of Music, Oslo.
2. *Transformation*, 28 March 2011 performance, Norwegian Academy of Music, Oslo.

### 3. Sound Examples to Accompany the Article “T-Tunes: Multiple Subjectivities and Narrative Method in Computer Music” by Elizabeth Hoffman (Volume 36, Number 4)

Note: All excerpts are included courtesy of the composers. Examples 2, 4, and 8 are courtesy as well of empreintes DIGITales, publisher. The label INA retains performing rights for example 5.

1. Lansky, *as it grew dark*. Excerpt timing: 5:30–6:40.
2. Dhomont, *Météores*. Excerpt timing: 4:15–5:05.
3. Suk-Jun Kim, *What the Bird Saw*. Excerpt timing: 0–1:30.
4. Normandeau, *Jeu*. Excerpt timing: 1:00–2:45.
5. Parmegiani, *la roue ferris*. Excerpt timing: 1:42–2:25.
6. Lockwood, *A Sound Map of the Hudson*. Excerpt timing: 3:00–4:15.
7. Koonce, *Hothouse*. Excerpt timing: 2:44–3:52.
- 8A. Smalley, *Pentes*. Excerpt timing: 1:40–2:57.
- 8B. Smalley, *Pentes*. Excerpt timing: 7:50–9:06.

9. Klein, *The Wolves of Bays Mountain*. Excerpt timing: 3:30–4:15.
10. Appleton, *Sheremetyevo Airport Rock*. Excerpt timing: 2:00–3:30.
11. Penrose, *Dodohead*. Excerpt timing: 3:30–4:32.
- 12A. Lyon, *Light Rain Laganside*. Excerpt timing: 3:28–4:40.
- 12B. Lyon, *Light Rain Laganside*. Excerpt timing: 7:58 - end.

**4. Sound Examples to Accompany the Article “Dynamic Convolution Modeling, a Hybrid Synthesis Strategy” by David Bessell (Volume 37, Number 1)**

1. Cymbal.
2. Gong.
3. Orchestral Bass Drum
4. Snare Drum.
5. Drumsticks.
6. Tom-tom.

**5. Video Examples to Accompany the Article “Predicting an Orchestral Conductor’s Baton Movements Using Machine Learning” by Donald G. Dansereau, Nathan Brock, and Jeremy R. Cooperstock (Volume 37, Number 2)**

1. The templating process. The white dot shows the real

input trajectory, the gray lines and dots show a generic template tracking this input, and the red line/purple dot show the adapted template being formed.

2. Performance, showing a prediction range of 250 msec (playback is slowed). The white dot again represents the input trajectory, the large purple dot represents the tracked position on the template, and the smaller white/green dot shows the predicted baton position.
3. This is a performance showing only the input data (large white dot) and prediction (smaller green dot).
4. This is the same performance as above, shown in real time, and with accompanying audio.

**Part Three: Additional Materials**

The 2013 DVD includes a DVD-ROM section. To access the material contained there, the reader will need to place the DVD into a suitable disc drive on a computer.

**1. Software and Design Examples to Accompany the Article “The FireFader: Simple, Open-Source, and Reconfigurable Haptic Force Feedback for Musicians” by Edgar Berdahl and Alexandros**

**Kontogeorgakopoulos (Volume 37, Number 1)**

Open Haptics for Artists. The zip file contains software and hardware design files.

**2. Data Set Examples to Accompany the Article “A Clustering Strategy for the Key Segmentation of Musical Audio” by Maximos A. Kaliakatsos-Papakostas, Andreas Floros, and Michael N. Vrahatis (Volume 37, Number 1)**

Artificial Data Sets.

1. Same.
2. Different.
3. Random.

Real Data Sets.

**3. Software Example to Accompany the Article “Synchronizing Sequencing Software to a Live Drummer” by Andrew Robertson and Mark D. Plumbley (Volume 37, Number 2)**

The zip file of the B-Keeper release contains both the old Max standalone version and the new Max For Live version of B-Keeper. Instructions are included in the ReadMe file.