



THE OXFORD HANDBOOK OF
IMPROVISATION
IN DANCE







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IMPROVISATION

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Edited by
VIDA L. MIDGELOW

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CHAPTER 28

DANCING THE INTERFACE

Improvisation in Zones of Virtual Exchange

THOMAS F. DEFRANTZ

DANCING the interface involves creating physical movement in relationship to data stored and manipulated by electric charges. Dance improvisers who work in the area of technology constantly face challenges of nonhuman interaction and the risk of mechanical failure. In addition, improvisers working with computer interfaces endure an overwhelming sense of nonempathetic indifference to questions of social identity that provide the warp and woof of physical imagination. This chapter offers commentary on and analysis of these processes as they were realized by SLIPPAGE: Performance|Culture|Technology, a performance research group in residence at MIT from 2003 to 2011. The case studies under consideration here include teaching tap dance to students in Singapore from a teleconference studio in Cambridge, Massachusetts; dancing improvised house music choreography while fitted with a wireless Midityron system that fed data that could control pitch, tempo, and playback for preselected audio files; creating motion-capture files of house dancing for use in a stage performance; improvising tap dancing on responsive floors that issued sound and video depending on the performer's improvised step; and improvising with Wii controllers that repurposed photographic images onto specially constructed surfaces in real-time performance. In each of these encounters, the terms of physical comprehension expanded and contracted, suggesting an every-where-ness and not-really-here-ness that deserve exploration. Exploring methods of improvising towards empathy, the essay suggests ways in which dancing bodies redistribute energy in relation to impossible connectivities that are often not human and insistently nonempathetic.

To paraphrase Isadora Duncan, as a performer, I often work as a soloist, but seldom do I dance alone. For me, the ghosts of sensation and the traces of light that surround being in time animate my approach to gesture, space, energy, emotion, and presence. I move by impulse, an impulse shaped by desire and ambition to fulfil, or extend, a sense of capacity. These are abstract motivations, in a way, but they also allow me to imagine a sexualized, sensual, gender-becoming person at once inside and outside motion.

I work most consistently as a gestural improviser in particular narrative circumstances, responding in real time to motivations provided by electronic interfaces designed by collaborating artists of SLIPPAGE. For me, moving with purposeful presence in modes of immediate discovery generates a sense of honesty about dancing that feeds my ethical sense of performing. If performing might be about sharing and expanding capacity for discovery among gathered witnesses, including the performers themselves, I've worked to develop strategies for mobilizing energy and gestural impulse in these performances. Thinking physically and striving to respond immediately, I work to combine lingering questions about race, class, gender, and sexuality with the choices of the moment.

My shift into improvisation as a method arrived alongside my work in interface design. SLIPPAGE collaborations feature digital archives manipulated in response to the physical gestures of the performer. As we mobilized these interface designs towards performance, it became important to match the spontaneous generation of the digital interface with movement choices conceived to be dialogic. An ethic of responsibility to engage the interfaces at hand inspired me to work in immediate responsiveness to the present condition, even as that condition changed, and the interfaces provided unexpected information for the emergent performance. As I often narrate for students of performance and technology, finding an abiding method to 'be present in the moment' encourages physical, social, and intellectual flexibility that might be important for many of us in various circumstances of life. Ultimately, this is my quest as an improviser: to engage and model social flexibility as a mode of art-making.

SLIPPAGE artists often consult theoretical writings to better understand ideologies that circulate in their performance projects. Engaging with theory is an embodied practice, and in time, these writings become foundational concepts for the development of research into performance. In addition to helping us understand how social relations have been made manifest, concepts of psychoanalysis, cultural memory, physical empathy, and social subjection offer points of entry to the organization of energy in space and time. We take it for granted that the continual interplay between theoretical writing and work in the studio enlivens dance, as well as the process of devising performance interfaces.

TAPPING INTO A TWENTY-MILLISECOND DELAY: LACAN AND THE PROBLEM OF LATENCY

Psychoanalyst Jacques Lacan wondered at the way in which time might be situated in experience that extends beyond calculations of rhythmic meter. In his paper 'Logical Time' (1945), Lacan articulated a concept of time that follows a dialectical structure: seeing, understanding, and concluding. As in Suzanne Langer's theory of aesthetic perception *Feeling and Form* (1953), the intuitive, neurobiological 'seeing' stage is followed by the processing of material in an 'understanding' phase of time, which leads to

the interpretation and ‘concluding’ that surrounds experience and meaning. Notably, the central *understanding* phase of time might be stretched or compressed according to circumstance. The mediating process of the understanding phase allows for the recognition of retroaction and anticipation in time; retroaction, as a reconceptualization of events that occurred before, and anticipation, of events yet to come.

Considered alongside realities of computer data processing, Lacan’s concept of the pliant *understanding* phase of time corresponds to issues of latency in video streaming. Latency is a continual bugaboo for performance involving live feed video design. When digital image processing lags far behind what humans typically experience, we note, with discomfort, the uneasy fit. This is the annoying and sometimes confusing lag between live gestures in the room, augmented by sensory signals of smell, sound, and sometimes touch, that arrive sooner than projected live-feed imagery. At rock concerts, or in technology-driven performances, audience members sense the time-lag disconnect between the performer on stage and the often-oversized image of that performer, typically projected overhead or behind the action. While some artists try to build latency into the creative visual design of a live-feed project, the fact remains that networked latency has not been solved to a threshold of zero or even imperceptibility, and the time of *understanding* that Lacan theorized remains an unavoidable truth in execution for dance technology projects.

On 14 September 2004, SLIPPAGE participated in a networked dance event, Moves across the Water. Staged at MIT, the event networked tap dancers at MIT with hip-hop dancers at the National University of Singapore (NUS) (see fig. 28.1). Working at 8 a.m., SLIPPAGE-affiliated artists and MIT student dancers in Cambridge, Massachusetts, collaborated with NUS hip-hop dancers at 8 p.m. in Singapore.¹ I taught a series of tap dance movements to the NUS students; in turn, we engaged the hip-hop styling of choreographer Patrick Loo. Sponsored by the Singapore-MIT Alliance, the event offered an example of Internet2 network capabilities in commensurate conference spaces refitted to allow for dance movement.² Steven Lerman, professor of computer science at MIT, provided technical oversight to the project.

Lerman promised that the Internet2 infrastructure would allow for the most diminished latency possible at the time: nearly twenty-one milliseconds. This represents a big advance over forms of streaming, which might range from two to ten seconds. Yet in the context of a session in dance, the latency arrived entirely palpable and present. We all constantly felt the lag between what I said, the sounds that I made with my tapping feet, and the movements performed by dancers at NUS.

Dance teaching always involves a human latency, as students try to anticipate and match movement that has not yet materialized and engage it simultaneously with the instructor’s effort. Over time, this lag in response is reduced, as teachers and students come to predict movement impulses together. After studying with a teacher for a time, students can anticipate movement enough to create credible versions of dance material even as it is first demonstrated.

But in this case, as with many dance technology experiments, the Moves Across the Water event was conceived as a one-off phenomenon, in which MIT and NUS dancers



FIG. 28.1 Thomas F. DeFrantz in *Moves Across the Water* (2004)

played with Internet2 networking without any serious plan for development or follow-up. Teaching an improvised movement phrase to student dancers 9,500 miles away in a first encounter, and then learning a movement phrase from their instructor, offered frustrating and odd shifts of time. Confronted by a large monitor, without the possibility of touch or smell, we foundered in my attempts to match movement. I struggled to offer movements in tap dance—a form the NUS dancers did not practice regularly—via the camera interface. Worst of all, I physically winced as I realized that the time between my call and execution of a tap movement could never match the execution I witnessed on the monitor. While the timing was surely closer than it might have been in other setups, we could never dance in recognizable tandem. The twenty-one-millisecond latency was enough to force me to recalibrate my movements, and leave even more time for *understanding* what happened in the digital processing of movement. As Lacan predicted, a distinction between the flexible logical time of my movement production and the fixed chronological time of the processing system led to a rupture in communication. In this instance, improvisation in hip-hop or tap dance could not bridge the misunderstandings surrounding gestures in formation.

I also often work in concert with technologies that simultaneously emphasize the presence of spectral haunting, while they diminish the elusive, taste-able scent palpable in moving alongside of others. I feel tension as I work with the constant sixty herz hum, barely perceptible but always there, as my collaborating dancers emerge from electrical

currents, all-too-typically underresourced. Electricity becomes my partner-in-crime, and programmers and technicians its agents. I dance with fragments of time repurposed via media. Something surely shifts in this transference, from a dance of engagement with an unprecedented Other of a person to the dance within the complex, but bounded, algorithmically prescribed interface. Could tap dance improvisation provide a method of suggesting or realizing an empathetic possibility in interface? SLIPPAGE addressed this question in the project Monk's Mood: A Performance Meditation on the Life and Music of Thelonious Monk.

SOURCING THE ARCHIVE FOR THE LYRICISM OF THE SURPLUS: MONK'S MOOD AND THE DIGITAL ARCHIVE OF THE INFORMATION AGE

See, black performance has always been the ongoing improvisation of a kind of lyricism of the surplus—invagination, rupture, collision, augmentation. This surplus lyricism ... is what a lot of people are after when they invoke the art and culture—the radical (both rooted and out there, immanent and transcendent) sensuality—of and for my people.... Blurred, dying life; liberatory, improvisatory, damaged love; freedom drive.

(Moten 2003: 26)

Performance theorist Fred Moten suggests that a resistance to objectification, a certain 'freedom drive', is carried at the heart of black performance. This drive is a resistance to fixity; and it is an aural capacity that is surely perceptible, even in visual materials, as a remnant of black voice. Moten's complex rendering of radical traditions in black artistry creates an unprecedented space for lyrical surplus: performance that exceeds by augmentation, collision, rupture, or even invagination to create something unexpected and imbued with the desire to somehow break free. This resistant drive confirms a sounding of radical aesthetics that persistently exceeds limitations or expectations of form. For Moten, the surplus of this aesthetic formation is conceived as an encounter with lyricism; an elegance of performative execution that confirms a capacity for improvisation to answer a political quest towards freedom.

When SLIPPAGE decided to explore the life of composer Thelonious Monk with a dance and theater work in 1999, our first approach focused on the narrative contours of Monk's biography as it had been understood to that time. Monk's unimpeachable place among creative artists needed none of our attention; but we were struck with the ways that Monk danced when he performed his music. His improvised dancing—visible in several documentaries—was a puppet-ish off-step stumble; a forging of weight towards impact without bounding recovery. Dancing, Monk often appeared to be out of his own control

and more than a little lost within his own physicality. At times, movement seemed to surprise him, even when he generated the motion in response to the music that he wrote.

Research for the project also embraced the expansive mediated archive of materials related to Monk's career. Over the course of six months, we were able to 'read' Monk's recorded catalogue: the entirety of music captured over the course of his professional lifetime as a musician. This astonishing access to sonic information offered a huge archive of materials to evaluate. The many versions of compositions that Monk wrote and recorded represented an unwieldy and provocative assortment of sources; finding our pathway towards a coherent collection of musical inspiration forced us to face the lyricism of surplus in the very archive of Monk's creative output.

The first version of Monk's Mood extended this concept to involve an experienced puppeteer collaborator. Lead visual artist Eto Otitigbe and puppeteer Noelia Ortiz-Cortés created several avatars for Monk's family and his bandmates: from a tiny marionette of Monk himself that played a tiny grand piano to clothing that represented his wife, animated by the puppeteer in plain sight, and to oversized sculptural constructions of cardboard and wood of musicians playing outsized instruments. I danced with and among these puppets and in response to selected video imagery created by Oro that drew on documentary sources (see image of Monk's Mood below, fig. 28.2).

My tap dancing meditation on Monk began at the end of his life, flashed back to his youngest days of creating music by himself and with his small ensemble friends, and worked its way through events in his life embodied in various relationships with his wife, children, and chief patron, Baroness Pannonica de Koenigswarter. Because the piece began at the end of things, with an older man testing the state of his memory and his ability to still 'do' as a creative artist, the work arrived imbued with a sad feeling of melancholy. Gearing myself towards performance in this work always involved summoning a state of detachment that allowed for the expressive physical imagining of off-centre music like 'Ruby, My Dear', 'Epistrophy', 'Monk's Mood', and 'Round Midnight'. As a whole, the work explored the potential of tap dance as a lyrical form of storytelling.

As the work developed, it became clear that we needed to make more space for improvisation in its very structure. No matter the amount of dance improvisation set into the work, with its prepared media and expert puppetry, this first draft felt too carefully arranged. We went back to the drawing board to imagine a method that could make space for the surplus lyricism to which Moten alludes; to develop something that could embed improvisation in the staging of the memory of Monk's life and work. Lead designer Eto Otitigbe worked with two Stanford University colleagues to repurpose the platform of the popular video game *Dance Dance Revolution*.³ By rewiring the platform and creating a software interface run by Max/MSP,⁴ we were able to create a step-platform that triggered theatrical event by the pressure placed on areas of the platform. The performer's step triggered event. We created a map of Monk's activities in the performance area: stage right for musical memories; stage left for memories driven by image. We separated bits and pieces of his piano recordings to create an archive of sounds that could be triggered by step during performance; we recast the prepared video in segments that could overlay or play in various tempi according to the triggering gesture of



FIG. 28.2 Thomas F. DeFrantz in *Monk's Mood: A Performance Meditation on the Life and Music of Thelonious Monk* (2002)

step. These archives, enlivened by the performer's step, became an instrument ready to play and improvise.

In performance, I worked to leave space for the unexpected arrival of sound or image according to step. Without knowing what sound or video document might come from any particular region of the platform, I could create a performance built on the improvisatory instinct that begged a surplus lyricism; one that somehow intended to demonstrate the freedom drive. Several sections of the forty-five-minute performance made use of this newly crafted interface, allowing me to choose my way through the fragments and respond in emergent improvisation to the sound and image released.

In this case, the interface responded literally to my foot-touch, and seemed navigable and sturdy. Over time, we jettisoned the bulky platforms surrounding the actual 'hot spots' of the interface and replaced them with small copper pads that were tethered to a control computer, typically located stage right of the performance area. These copper plates made the touch-trigger nature of the interface more obvious to the audience and reduced the questions surrounding causality that often overshadow interactive technology performance. The fact that the floor-step triggered events aligned well with improvised tap dancing as a retelling of Monk's life and music. The conceit of the work became an improvised solo tap dance performance augmented by an interface that accessed a large digital archive in an unpredictable, improvisatory manner.

Dancing this interface, I appreciated its clarity of intention and effect. My step was rewarded by sound or image; this correlation allowed me to construct a performance

that participated in the surplus of lyricism that Monk's playing always approached. Performances of this work stretched from 2002 to 2012 and offered a sustained engagement with the trigger-step interface as an instrument employed in the service of theatrical storytelling. Visual imagery and fragments of piano sounds became reliable partners to my creation of a performance, and I looked forward to their unexpected arrival, triggered by my step, in each performance circumstance.

INTANGIBLE CONNECTIONS AND EMPATHETIC RAPPORT

The House Music Project

To 'choreograph empathy' thus entails the construction and cultivation of a specific physicality whose kinesthetic experience guides our perception of and connection to what another is feeling.

(Foster 2011: 2)

Are there techniques of knowledge production that invite us to imagine the other without presuming knowledge of the other?

(Foster 2011: 14)

Dance theorist Susan Foster offers a historicizing methodology to examine 'how bodies feel and how they feel about each other' (2011: 14). In seeking out correspondences between choreography, kinaesthesia, and empathy, she explores how changes in these concepts over time have contributed to changes in a general capacity for understanding what movement does, and how it can feel to movers and their witnesses. Foster encourages her readers to note how choreography can provide clues to the specific experience of the physical in the ways that it 'records or documents movement, and also in the ways that it sets forth principles upon which movement is to be learned and crafted' (175). Empathy, as a concept of great interest for contemporary neuroscientists, offers a most 'fundamental capacity of our minds, foundational to the very way that knowledge is acquired' (178).

The important distinction between movers and those watching (or not moving) becomes manifest in wearable technology work that correlates gesture to effect without visible means of connection. Many artists have engaged wireless or camera-tracking technologies to distribute image or sound according to the movement of the dancers onstage. Yet watching a wearable technology work is quite different from performing in one. Somehow, we still might imagine that these technology-driven works can generate some sense of empathy for viewers. Working on the House Music Project, from 2002 to 2007, I enjoyed dancing a custom-designed interface that predicted the X-Box Kinect

interface in its ability to allow my movement to influence audio cues. Wearing the interface, which was a series of sensors connected to a wireless Miditron pack, I imagined sharing the sense of flow and movement impulse with gathered witness who could sense the connection between movement and sound.⁵

With the House Music Project, SLIPPAGE wanted to explore a history of house music, a widely distributed but little discussed idiom of black popular culture. House is a black American musical form from the late 1970s, born of its predecessors disco and funk and contemporaneous with the emergence of hip-hop. House gave way to techno and rave events before splitting into the myriad forms practised today: jungle house, trip house, hard house, acid house, chill house, and so on. House began in queer, LGBT black and Latino sites of celebration, as music that kinetically connected Sunday morning gospel music and worship traditions with Saturday night imperatives of partying. In house settings, a DJ mixes snatches of prerecorded gospel-styled vocals over pulsing, regularly metered drum and bass foundations. Many house DJs add live musical accompaniment to their mixing efforts, typically with small keyboard synthesizers connected to a dual-turntable setup. House is an electronic form of black popular music, built around the circulation of electricity for its production.

SLIPPAGE artists originally imagined the work as a performance/installation developed from a large and ever-expanding archive of historical materials related to house music.⁶ We wanted to create an interface that would allow the performer to operate as a DJ of sorts, as dance movements would trigger events in various media directed at a physical environment setting that represents a literal ‘house’. After a few years of casual research and imagination sessions, the project moved towards realization in a month-long residency at the University of Texas at Dallas in January 2006. At the university, we were able to make use of a large, fully functional motion-capture laboratory to generate data streams based on house dance movements and to play with the wireless Miditron setup in a theatrical space.

House dancing involves a full physicality of relentless flow in its execution—house dancers rarely stand still. For the dance interface of this work, we turned to the commercially available Miditron and worked to create a robust wireless version that could function with sensor readings from different areas of a dancing body in motion. We placed a variety of small sensors at different points of the body—accelerometers along the shoulders; tilt-sensors along the ankles; a button-sensor in the right hand. These sensors fed a stream of information to a Max/MSP setup that determined various events related to sound. Sound sequences, selected from an archive of house music created for the project, could be accelerated, slowed to a zero tempo, or played in reverse; sound could be equalized according to gesture, with a raised hand triggering an audio equalization (EQ) that sounded only high tones, while a foot stop triggered an EQ that emphasized low, bass tones. Particular shimmies of the shoulders could trigger the looping of particular sound fragments; combined with other motions, fragments could be layered on top of each other by the performer.

The project also involved motion capture. Working with engineers at the university’s lab, we caught sequences of house dancing and mapped them to a stick figure drawing.

Clips of this manipulated material were fed into a computer running Isadora software;⁷ these images were released onto the stage environment as certain aspects of the performer's movement triggered them.

Dancing this interface, I always wondered when the connection would work and when it might fail. The wireless Midityron infrastructure—created with Max/MSP programming—was not nearly so robust or reliable as we might have hoped. While the interface worked much more often than it did not, and probably produced the hoped-for outcome in nearly each performance application, I never felt sure that it would. Thus, my performances with the bodypack attached were never as free-flowing or fully engaged as I might have liked. In sequences that involved actively controlling sound via gesture, I rarely felt free to move and assume that my dancing partner—the Midityron—would keep up with my movements.

The short amount of time available to actually work with the interface affected the way the performance could be realized. While we developed the context for the project across several years, the actual implementation phase of the project was quite short—only three months. This accelerated timeline was not conducive to in-depth experimentation or achievement. As with many technology-driven projects, the diminished amount of tech time profoundly influenced what happened on stage. We do plan to return to this project in the near future and work with camera-based technologies of gesture processing. In that revised version, we might hope for an empathy of trust between performer and interface; a way to allow the dancer and the interface to share information, improvisationally, without presuming to 'know' what the other will do, when, or precisely why.

HAUNTING THE SHADOWS: CANE AND REPURPOSED WII CONTROLLERS

Performance can never be entirely new or entirely volitional, as all performance repeats prior nonoriginal substitutions, even if those substitutions are invisible, forgotten, buried, or ignored.

(Bhana Young 2006: 24)

To be black is to have accrued a subjectivity haunted by the spectral traces of a social, political and ideological history.

(Bhana Young 2006: 25)

In her provocative study of an African diaspora that is always already bound up with gender, performance theorist Hershini Bhana Young wonders at the historical injury and collective wounding wrought by slavery and colonialism. She works to delineate a diaspora that is 'much more than global patterns of flows and resistances'—'or even systems of cultural exchanges'—to consider one that might be 'embedded in the dense structures of memory' (Bhana Young 2006: 1). This memory includes the hauntings of

violence done not only to individuals but also to groups of subjugated black people who have been cast as the ghosts of modernity, the ‘indispensable coerced mechanisms of labor, the Other against whom the whiteness of the imperial Subject was formed’ (47).

Sometime in 2005 it became clear that we wanted to think about how environments hold history, and how particular locations tell their own tales of human trauma and survival. Bhana Young’s 2006 text *Haunting Capital: Memory, Text, and the Black Diasporic Body* offered a framework for thinking about the complex ways trauma and violence circulate across geographies. Poet Jean Toomer’s experimental text *Cane* (1923) inspired an exploration of the lives of women and men circumscribed by violence, as African Americans living in the South during the height of sharecropping. In *Cane*, the various exchanges among people are always witnessed by an uncompromising natural surround.

In 2007 we started work on CANE, inspired by Toomer’s text and influenced by Bhana Young’s writings (see fig. 28.3). The sugar cane fields figure prominently in Toomer’s work; we decided to develop a responsive cane field environment, to act as mirror and witness to the movement of a man and woman. Constructed of the tubing that usually surrounds fluorescent lights, the cane field included microphones and speakers, miniature cameras, and images that were released onto the tubing structures via short-throw projectors. We worked to create a cane field that breathed, animated by sound and light according to random algorithms at all times and by specific setups at some times during performance. According to what the microphones in the cane fields ‘heard’, they would release sound into a soundscape at irregular intervals. The sounds included musical cues pulled from the score by composer Tara Rodgers and clips culled from the Library of Congress recordings of slave narratives from the Federal Writers’ Project of 1936–1938.

The two responsive stands of synthetic cane allowed for movement alongside, in front of, and behind their vertical rods. Imagery distributed onto the stands ranged from archival materials of African American sharecropping lives to newly created film imagery of the performers. One area of the performance space represented a small cabin with a makeshift cot; this area of the stage had no mediated connection to the electronic cane field. Rather, the cane field, with its various devices of surveillance and reportage, held visual and sonic memories of events that had taken place in outdoor spaces.

One interface developed for this workshop production involved an Isadora patch created for a repurposed Nintendo Wii controller. The patch written for Osculator, and readily available online, allows for data from the various sensors that operate within the controller to be processed by Isadora. We created a setup that allowed the motion of the controller to influence the scale of a portrait image displayed on one of the cane fields. The portrait displayed in any performance of the work was chosen by the program at random from an archive of several available images. Waving the controller, like a magic wand, changed the size of the image along horizontal or vertical axes, or both axes in tandem. Dancing with the controller in hand, the performer could manipulate the size and shape of a child’s face that seemed to gaze impassively at the dance performance under way.

Created to suggest possibilities of shimmering, mediated histories mixed in real time via a specially constructed responsive environment, CANE reveals itself through an



FIG. 28.3. Thomas F. DeFrantz in CANE workshop (2007)

interface that responds to the dancers, offering sound in response to sound, image in response to motion, and adjustments of sound or image in response to what the interface perceived. Dancing the interface—and especially in the setup that involved the Wii controller and the oversized portrait—forced my attention to the point of contact: my hand holding the device. Disguised as a discarded cane stalk, in a wooden, reed-like enclosure, the controller demanded my creative attention in motion. The interface between its movements and the image on the cane field correlated to my own visual attention to the image. My movements became inordinately driven by my hands: the amount of force needed to effect width; the shifts in velocity or angle that adjusted simultaneous x and y calibration. As any video game fan knows, the Wii controller offers a robust platform, with reliable data streams that are not difficult to learn to manipulate. But dancing with the disguised controller raised other performance concerns. Turning towards the

ground, I worked to maintain the vertical horizon of the controller so as to only adjust the projected face slightly during this manoeuvre. Tilting my torso, while raising my arms, I stayed attentive to the angle of my hand holding the controller, so that the overall size of the projected image would shrink and expand in time with my movement. In total, these attentions to the limb and hand most responsible for the control of the interface strongly adjusted my movement choices towards a delicacy and sense of minutiae that were not present in other portions of the performance.

Dancing improvisationally in the electronic cane field, inspired by the potent poetry and storytelling of Jean Toomer, embodying imagined women's lives probably too real by half to be drawn as fiction, I felt a traumatic return to rage and confusion. My usual cool modes of movement—which typically aligned well with technologies still in development with various SLIPPAGE projects—failed in this circumstance; they felt awkward and incomplete, flimsy, mechanical. My movement couldn't respond to the emotion released by visiting this scene of subjection, even though we created scenes of our own volition. Bhana Young asserts that 'performance . . . always carries the ghostly traces of a history that is always violent' (2006: 24); CANE confirmed this trace even in its first workshop iterations of 2007.⁸

A truism suggests that technological intervention will not surpass or equal the variety of stimulation that personal interplay provides; in many ways, these examples confirm this assumption. Improvising in these environments, I wonder how I feel. This wondering is an active component of my performance research; it is the process of assessment that allows me to make improvisational movement choices as I dance, and it feeds choices that we make as we develop technologies for dance interface. These four examples offer a range of responses to dancing an interface: frustrated by the latency of an Internet2 connection; enlivened by a reliable step trigger in a tap work; unsure of the capacity of my electronic partner in a sensor-on-the-body setup; enthralled by the attentive response of a wand that creates an easily perceptible connection from hand to electronic image.

While these four SLIPPAGE projects employed technologies as means towards an end, we developed their interfaces to answer particular questions of historiography in terms of dance theater. As an interdisciplinary research group steeped in the American educational academy, SLIPPAGE sources contemporary theory, historical research, popular culture, African American folklore, gender and sexuality studies, dance, theater, and performance studies to imagine alternative histories for underexplored topics. As this essay demonstrates, these academic modes of analysis inspire theatrical projects that tilt towards the creation of danceable interfaces, preferably projects that realize themselves with improvisatory modes of moving at their core.

Narrated in this way, the ambition to explore alternative histories through dance takes precedence over the development of the interface. This seems only fair to me. For me, this alignment of technological research that aids in the development of theatrical storytelling predicts a potential for development that centres an ambition to communicate. While these interfaces sometimes felt chilly and left me craving palpable human connection, they arrived in response to a need for physical augmentation, precipitated by

the project at hand. They allow a connection across distances that is otherwise impossible. Perhaps they predict an alternative sort of empathy, a different way of feeling across space-time that we will come to develop and understand in time. Improvising dance in these interfaces and according to our agreed-on narrative constraints, I often thought of the engineers, technologists, researchers, and collaborating designers as I attempted to manipulate a tone wearing the Midityron or stretch the face of a young woman with the Wii controller. By themselves, the interfaces seldom allowed for the spark of empathetic recognition, as another improvising performer might have done. In the end, these human relationships, and all the missteps and accomplishments that led us towards performance, were the material that fed my ability to compose while dancing.

NOTES

1. Special thanks to Charmian Wells and to all SLIPPAGE collaborators involved in this research.
The MIT student dancers included James Tolbert, a senior majoring in computer science, and Bradford Backus, a graduate student in the Harvard-MIT Program in Health Sciences and Technology. Patrick Loo led six NUS student dancers.
2. Internetz is a research consortium that tests emergent hardware and protocols for speedy data transmission. was The Singapore-MIT Alliance is a program that engages MIT, the National University of Singapore, and Nanyang Technological University in a collaborative graduate education and research program. This specific collaboration was facilitated by Alan Brody, MIT provost for the arts, playwright, and novelist, and Edwin Thumboo, poet and director of the Center for Fine Arts at NUS.
3. These Stanford University colleagues were Luigi Castelli and Bert Scheittecatte.
4. Max/MSP is a visual programming language for music and multimedia developed and maintained by San Francisco-based software company Cycling '74.
5. The Midityron is a board that allows artists and inventors to experiment with electronics and programming and create new forms of time-based robotic and interactive works. Invented by engineer-artist Eric Singer, the Midityron allows you to use a Mac or a PC as a primary control platform and programming platform and to use the Midityron board as a coprocessor, handling sensor inputs and outputs and interfacing these to a variety of software and user environments.
6. Collaborating artists included project designers Eto Otitigbe and James Tolbert and visiting artists Venus Opal Reese and Edoni Fleitas. Performers included Jeff Senita, Webster Heffern, Yang Ruan, Tilly Whitney, Edward Lim, Stephen Steger, Kim Tapp Jackson, Matthew Breton, and Jonathan GNO White.
7. Isadora is a proprietary graphic programming environment for Mac OS X and Microsoft Windows, with emphasis on real-time manipulation of digital video. Designed by Mark Coniglio, it offers support for Open Sound Control.
8. CANE continued its development to a final form in 2013, created in collaboration with Wideman-Davis Dance Company, Tanya and Thaddeus Wideman Davis, directors. Video of the work can be seen at www.slippage.org.



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