

# North American Conference *on* **Video Game Music**



# Program Book

January 17–18, 2015

# Fort Worth, TX

**TCU**

# The School of Music

# Conference Program

Saturday, January 17

**8:00**                   **Registration Table Opens**

**9:00**                   **Welcome and Announcements**

**9:15–10:45**           **Session 1      Chair:** William Gibbons

“From Attunement to Interference: A Typology of Musical Intertextuality in Video Games.”  
Dominic Arsenault and Andréane Morin-Simard (University of Montreal)

“Additional Modes of Interactivity Decrease Inhibitors to Flow”  
Joshua Sites (Indiana University)

“Immersion into what? The sound world of Sid Meier’s Civilization V”  
Karen Cook (University of Hartford)

**10:45–11:00**           **Break**

**11:00–12:30**           **Session 2      Chair:** Steven Beverburg Reale

“Lost (and Found) In Your Head: The Significance of Binaural Diegetic Audio in *The Nightjar*”  
Thomas H. Doughty (University of Florida)

“On Silence in Video Games”  
Dana Plank-Blasko (The Ohio State University)

“Sound Effects as Music (or Not): Earcons and Auditory Icons in Video Games”  
Elizabeth Medina-Gray (Oberlin College)

**12:30–2:00**           **Lunch**

**2:15–3:45**           **Session 3      Chair:** Neil Lerner

“Analyzing Narrative in Video Game Music: Topic Theory and Modular Design.”  
William Ayers (University of Cincinnati)

“Intersections of Musical Performance and Play in Video Games”  
Julianne Grasso (University of Chicago)

“Navigating the Musical Uncanny Valley: *Red Dead Redemption*, *Ni no Kuni*, and the Dangers of Cinematic Game Scores”  
William Gibbons (Texas Christian University)

<b>4:00–5:00</b>	<b>Keynote Address:</b> Winifred Phillips “The Role of Music in Video Game Immersion”
<b>5:00–6:00</b>	<b>Book Signing and Coffee Break</b> TCU Bookstore
<b>6:00</b>	<b>Conference Dinner</b> Blue Mesa Grill

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### **Sunday, January 18**

<b>8:00</b>	<b>Registration Table Opens</b>
<b>8:30–9:30</b>	<b>Session 4</b> <b>Chair:</b> Steven Beverburg Reale  “Video Games in the Digital Music Trap” David Ardit (University of Texas at Arlington)
	“Old Categories for New Media: Rethinking Music Videogame Organology” Michael Austin (Howard University)
<b>9:30–9:45</b>	<b>Break</b>
<b>9:45–10:45</b>	<b>Session 5a: Special Pedagogy Session</b> <b>Chair:</b> James Buhler  “Designing Game-Centric Academic Curricula for Procedural Audio and Music” Robert Hamilton (Stanford University)
	“Teaching Video Game Sound Design with Pure Data” Paul Turowski (University of Virginia)
<b>10:45–11:00</b>	<b>Break</b>
<b>11:00–12:30</b>	<b>Session 5b: Special Pedagogy Session</b> <b>Chair:</b> James Buhler  “Teaching the Soundtrack in a Video Game Music Class” Neil Lerner (Davidson College)
	“‘Sounding Like the Piece’: How Rhythm Games Can Help Us Teach Rhythmic Reduction” John Knoedler (University of Michigan)
	“Music Appreciation and the Mario Bros.: The Pedagogy of Musical Hermeneutics” Stephen Armstrong (Michigan State University)

12:30–2:00	<b>Lunch Break</b>
2:00–3:00	<b>Session 6</b> Chair: Neil Lerner
	“Hitting Reset: Reception, Replay Value, and the Creative Process of Video Game Cover Music” Kathleen Kuo (Indiana University)
	“Compositional Techniques of Chiptune Music” Christopher Hopkins (Long Island University)
3:00–3:15	<b>Break</b>
3:15–4:15	<b>Composing for Games Q&amp;A with Winifred Phillips</b> Co-sponsored by TCU Society of Composers Moderator: Martin Blessinger
4:15–4:30	<b>Break</b>
4:30–5:30	<b>Session 7</b> Chair: William Gibbons
	“Displacing Nostalgia: Medium-Specific Compositional Strategies in Motoi Sakuraba’s Soundtrack for <i>Golden Sun</i> ” Oren Vinogradov (The University of North Carolina at Chapel Hill)
	“Lighter Than Air: A Return to Columbia” Enoch Jacobus (Independent Scholar)

# Presentation Abstracts

(in alphabetical order by presenter)

## “Video Games in the Digital Music Trap”

David Ardit (University of Texas at Arlington)

When *Grand Theft Auto V (GTAV)* was released in 2013, it set records by being the largest first day release of an entertainment product hauling in \$800 million in sales. Notably, *GTAV* included 240 music tracks in the game. As the recording industry responded to the decline of CD sales, major record labels began to seek-out new ways to generate revenue from the sale of music. The overall strategy has been to expand consumption beyond album and single sales by deploying copyrights. I call the subsequent business model the digital music trap. Major record labels and their artists benefited from synchronization licenses on the blockbuster video game. Whereas the recording industry viewed video games as competition for consumers in the early 2000s, the major labels have developed a way to use gaming to create new revenue.

This paper will explore the role that synchronization licenses have played for major record labels to generate revenue following the decline of CD sales. It will focus specifically on ways that record labels deploy their copyrighted music in *GATV* and the music rhythm games genre (e.g. *Guitar Hero* and *Rock Band*). I will develop a critical political economy of copyrighted music in popular video games. I argue that video games act both as a means for record labels to exploit copyrights and as a source of marketing for the sale of music in other media.

## “Music Appreciation and the Mario Bros.: The Pedagogy of Musical Hermeneutics”

Stephen Armstrong (Michigan State University)

In the music appreciation classroom, instructors face students who have an exhaustive intuitive knowledge of tonal procedures, though they cannot articulate the facts of tonal construction and socially-constructed musical meaning. Because today's music is so well-produced and abundant, music itself becomes difficult to approach with a critical ear. Despite these difficulties, instructors cannot solve the underlying problem simply by exposing students to more and better music; students are already inundated with musical information. Rather, the challenge is to find ways of distancing students from musical experience in surprising and meaningful ways.

In taking up this challenge, I argue that the music of pre-millennial video games are an ideal medium for teaching both the elements of music and the hermeneutics of musical devices. Apart from its cultural currency and undeniable shock value, game music is useful precisely because of its technical limitations: programmers had to maximize their limited materials to generate compelling musical frameworks for accompanying play. In developing my arguments, I include numerous case studies from my own experience as an instructor in music appreciation, showing how an eclectic blend of pre-millennial game music can complement the deployment of film music and the classics. By demonstrating that the same sonic principles govern everything from symphonies to chiptunes, instructors can help students gain a deeper appreciation for the fundamentals of musical structure.

## **“From Attunement to Interference: A Typology of Musical Intertextuality in Video Games”**

Dominic Arsenault and Andréane Morin-Simard (University of Montreal)

This paper maps out the differing kinds of intertextual uses of music in video games, building a typology from the standpoint of their reception and affective impacts on the player. We first build upon Philip Tagg's concept of codal interference (2013), supplemented by Sébastien Babeux (2004, 2007) and Andréane Morin-Simard's larger work on interference to open up a discussion on the various types of musical intertextual references, ranging from the inclusion and recognition of leitmotifs providing an intended aesthetic payoff increasing the player's in-game attunement (Odin 2000) to the various types of interference, where a player's reaction to the game's music interferes with the music's perceived aesthetic intent. This primary framework is complemented with genre theory and aesthetics (Arsenault, Eco, Jauss, Roberts) to integrate the concepts of horizon of expectations and intentio operis, which provide the tools necessary for qualifying the semiotic reception of music and its intertextual effects. We briefly demonstrate the various types of intertextual references and dwell mainly on interference, categorizing the phenomenon in its many dimensions according to the source (the musical intertext can be internal/external), its semiotic channel (codal/aural), its role and integration into gameplay (actional/affective), and horizon (serial/generic). Examples will be produced from a variety of games covering a wide historical spectrum (roughly 1983-2013), including *Donkey Kong Country*, *The Legend of Zelda: Ocarina of Time*, *Prince of Persia: Warrior Within*, *Dynasty Warriors*, *Blue Dragon*, and *DuckTales: Remastered*.

## **“Old Categories for New Media: Rethinking Music Videogame Organology”**

Michael Austin (Howard University)

Guitar Hero (2005) and Rock Band (2007) are, of course, the most famous specimens of the “music videogame” genre. Groundbreaking scholarship on these games regarding the ways in which they influence players to learn to play “real” instruments can be found in several books, book chapters, conference presentations, and academic and journalistic articles. Scholars have also addressed many other issues surrounding these games regarding their potential for genuine music-making. While other music games have received exponentially less critical attention, these issues apply equally to them, and most investigations of music games also center around the ways in which players interact with the music in the game.

The most famous musical instrument classification system, the Hornbostel-Sachs System, categorizes instruments based on the ways they are played (struck, blown, plucked, shaken, etc.), i.e., how musicians interact with them; likewise, music games are classified based on player interaction and gameplay. For example, rhythm games (such as Guitar Hero and Rock Band) require players act in rhythm with the game's music, and music memory games challenge a player's musical memory in gameplay. Even if this is the “best” way to classify these games, is it the only way? Can we really even make music with music video games, and if so, how? Are music games virtual simulations of “real” musical instruments or real instruments in their own right? What can we learn by rethinking putative categories and taxonomies? This essay addresses these questions by challenging the ways we currently classify music videogames.

## **“Analyzing Narrative in Video Game Music: Topic Theory and Modular Design.”**

William Ayers (University of Cincinnati)

Examining the narrative structure of music in video games is often a challenge due to the dynamic quality of the medium. Cues are frequently triggered by player actions, providing a degree of unpredictability to the overall musical design. Recent studies in video game music have provided tools for analyzing this open-ended structure. Elizabeth Medina-Gray’s work on modular design in video game music offers a rigorous system for examining the various combinations of musical modules. She uses this system to examine narrative elements in *Kingdom Hearts*, *The Walking Dead*, and *Mass Effect 2* (among others). Additionally, Winifred Phillips (2014) considers the narrative functionality of certain musical elements from a composer’s perspective, noting the dynamic nature of stinger cues and their purpose in gameplay.

Though these studies provide a strong foundation, many aspects of narrative structure in video game music have not yet been explored in the dynamic/modular framework. In this presentation I will expand this modular methodology to deal with the materials of topic theory, specifically considering examples from the *Arkham* series of video games and other similar games. Musical modules in the *Arkham* series are often coded with specific topical references, generally aligning with the Batman character himself, e.g. martial or macabre topics given in Donnelly (1998) and Young (2013). By analyzing the topical content of interacting modules as they are triggered by a player’s actions, we can observe an emergent musical narrative which materializes in conjunction with gameplay situations such as combat, exploration, and victory.

## **“Immersion into what? The sound world of Sid Meier’s Civilization V”**

Karen Cook (University of Hartford)

The fifth installment in Sid Meier’s popular strategy game series, *Civilization V*, was released in 2010, quickly living up to expectations by winning Game of the Year. The series is famous for its premise, in which the player takes on the role of a particular historical figure and strives to lead his/her civilization to victory through a variety of military, technological, and diplomatic means. The series has also earned both critical and popular acclaim for its musical soundtracks; for example, the theme song to *Civilization IV* was the first composition written for a video game to win a Grammy Award (in 2011). *Civilization V* publicity reveals a self-awareness of the popularity of its predecessors’ music: it highlights the new edition’s sound world as one of its main attractions. Moreover, it specifically describes the aural components as ‘immersive,’ suggesting that sound is a crucial component of the series’ prized “just one more turn” gameplay. Sound is a primary factor in player engagement throughout the *Civilization* series, yet the sound world in *Civilization V* moves beyond that of its most immediate predecessor in several key ways: most notably, it now provides a more musically homogeneous and culturally distinct soundtrack for each of its eighteen civilizations. In this paper, I investigate how this new approach to the soundtrack provides the heightened sense of immersion that the game designers desire, but simultaneously raises questions about the (re)production of cultural stereotypes in music.

## **“Lost (and Found) In Your Head: The Significance of Binaural Diegetic Audio in *The Nightjar*”**

Thomas H. Doughty (University of Florida)

Frances Dyson (2009), in *Sounding New Media*, describes sound as the perfect immersive medium. “Three dimensional, interactive and synesthetic, perceived in the here and now of an embodied space.” Game sound has a distinctive quality that advanced digital imaging, in spite of all its dynamically rendered high resolution art, cannot replicate. Game sound is experienced internally and can evoke perceptible realism, sonically and spatially. Specifically, binaural audio allows the player to perceive the diegetic sounds encompassing the game’s avatar as their own. Binaural/3D audio engines have been used experimentally for many years, most notably by Char Davis who used interactive 3D sound for her virtual reality art installation *Osmose* (1995). Binaural audio, however has been used almost exclusively by audio-only games. The most commercially successful of these, developed by Somethin’ Else, are the *Papa Sangre* series, *The Nightjar*, and *Audio Defense: Zombie Arena*. In *The Nightjar*, a narrative-driven mobile app that is played on headphones, the player learns that they have been stranded on the spaceship *Nightjar* and must navigate the maze of the spaceship to safety using only audio cues, sound events, and the voice of the guide (voiced by actor Benedict Cumberbatch). In order to be successful the player must orient themselves within the sound space of the *Nightjar*. The significance of *The Nightjar* and other recent audio-only games is with how binaural audio acts to connect the player to what Salen and Zimmerman(2003) call the “immersive fallacy,” the illusion of spatial placement inside a digitally created environment.

## **“Navigating the Uncanny Musical Valley: Red Dead Redemption, Ni no Kuni, and the Dangers of Cinematic Game Scores”**

William Gibbons (Texas Christian University)

Many recent video games strive towards an “interactive film” model, a trend epitomized in such games as *Red Dead Redemption* (2010) and *Ni no Kuni: Wrath of the White Witch* (2010/2011), both of which explicitly imitate cinematic models in their narratives, visual presentation, and musical scores. *Red Dead Redemption* is an homage to classic film Westerns, and its aleatoric score by composers Bill Elm and Woody Jackson evokes those films in both orchestration and tonal language. *Ni No Kuni* is a collaboration between Level-5 Games and the animation collective Studio Ghibli—with music by Joe Hisaishi, who scored such Ghibli films as *Spirited Away* (2001) and *Howl’s Moving Castle* (2004).

In both instances, however, I argue that the emulation of cinematic scoring ultimately reveals the illusory nature of its mechanics. The revelation of artificiality creates a disjunction that, once apparent, risks alienating players. Videogame designers have long been plagued by the “uncanny valley”: the “almost-but-not-quite real” point at which increasingly lifelike digital representations of humans become disturbing to players, uncomfortably reminding them of the unreality of what they see, reinforcing the absence of “liveness” and undercutting the potential for emotional connection and dramatic impact. Using *Red Dead Redemption* and *Ni no Kuni* as case studies, I make the case for the existence of a similar “uncanny musical valley” that occurs when videogame music too closely approximates cinematic musical styles. In doing so I engage with and expand the growing amount of scholarship exploring the complex relationship between film and videogame scores.

### **“Intersections of Musical Performance and Play in Video Games”**

Julianne Grasso (University of Chicago)

When Mario ducks behind a platform and finds a secret room in a level of Nintendo’s *Super Mario Bros. 3* (1988), his friend Toad offers him a treasure chest with a clue to the contents within: “One toot on this whistle will send you to a far away land!” Indeed, with Mario’s own Zauberflöte of sorts, the player gains the power to warp among different worlds in the universe of the game. *Super Mario Bros. 3* is, of course, just one example of a game in which the player can take on some role, however small, in a performance of music. On the other end of the spectrum, games like the *Rock Band* series (Harmonix, 2007) are built entirely on the gamification of musical performance. Yet both of these disparate examples rely on states of “performativity” as tools for ludic and narrative engagement, whether within a magical world or in front of a virtual audience.

This paper explores implementations of musical performance across multiple genres of video games in which music becomes a medium of interactivity in virtual play. Drawing from Kiri Miller’s concept of schizophonic performance, I discuss the modes of engagement and embodiment created by various intersections of game-play and musicplay. Finally, I bring virtual performance to bear on “real-world” video game music concerts, adding another intersection of performance to the realms of memory, nostalgia, and community.

### **“Designing Game-Centric Academic Curricula for Procedural Audio and Music”**

Robert Hamilton (Stanford University)

The use of procedural technologies for the generation and control of realtime game music and audio systems has in recent times become both more possible and prevalent. Increased industry exploration and adoption of realtime audio engines like libPd coupled with the maturity of abstract audio languages such as FAUST are driving new interactive musical possibilities. As such a distinct need is emerging for educators to codify nextgeneration techniques and tools into coherent curricula in early support of future generations of sound designers and composers. This paper details a multitiered set of technologies and workflows appropriate for the introduction and exploration of beginner, intermediate and advanced procedural audio and music techniques. Specific systems and workflows for rapid gameaudio prototyping, realtime generative audio and music systems, as well as performance optimization through lowlevel code generation will be discussed.

### **“Compositional Techniques of Chiptune Music”**

Christopher Hopkins (Long Island University)

The style of chiptune music used in video games from the 70s to the 90s is a product of technology, the era of its popularity in video games, and the composers. I wrote a doctoral dissertation currently awaiting approval titled "Chiptune Music: An Exploration of Compositional Techniques in Sunsoft Games for the Nintendo Entertainment System and Famicom from 1988-1992" that explores the tradition of chiptunes.

The inner workings of the audio processing unit of the NES and Famicom suggest audio design choices and limitations for composition. Sunsoft composers Naoki Kotaka and Masashi Kageyama composed soundtracks in conjunction with sound programmers, taking advantage of the soundchips' strengths and establishing a common set of compositional techniques that are classified as the chiptune style. The decisions made and techniques preferred comprise the chiptune style used in modern compositions in games and other media.

Over twenty compositional techniques are identified and confirmed through eight original soundtrack transcriptions of Sunsoft games. Of particular interest is the use of the pulse-code-modulation channel to create a melodic instrument with a limited set of samples. Analysis of the audio engines in these games shows how Sunsoft and its sound programmers improved the musical palette.

New interviews with Neil Baldwin, Alberto Jose Gonzalez, and Masashi Kageyama reveal the process by which NES and Famicom composers translated musical ideas to instructions for the sound chip. Further interviews with Troupe Gammage and members of the NESDev community identify the role chiptune music has in retro-inspired games and the greater listening community.

### **“Lighter Than Air: A Return to Columbia”**

Enoch Jacobus (Independent Scholar)

At last year’s North American Conference on Video Game Music, *Bioshock Infinite* seemed a popular topic of discussion. But those discussions centered on the diegetic use of licensed (usually anachronistic) music reinvented, or at least reinterpreted within the context of the game. This presentation seeks to open a deeper discussion of the original music composed for *Bioshock Infinite* by Garry Schyman.

The track “Lighter than Air” is a particularly intriguing point of departure from a music-theoretical perspective as well as from the broader perspective of one’s musical philosophy. I present a comparative analysis to demonstrate, despite Schyman’s own protestations, the links between “Lighter than Air” and the aesthetic of early twentieth-century composer Charles Ives. I say “protestations” because Schyman claims to have eschewed imitating music contemporaneous with the game’s setting. However, it is my belief that his music (and this track in particular) betrays a certain inescapable correlation to music just after the turn of the twentieth century.

### **“‘Sounding Like the Piece’: How Rhythm Games Can Help Us Teach Rhythmic Reduction”**

John Knoedler (The University of Michigan)

At first glance, the various difficulty levels in games like Guitar Hero and Rock Band appear to be suitable models for rhythmic reduction, but closer inspection shows they have more in common with the problems students face than with the solutions they seek. Peter Schultz, in his discussion of music theory in music games, states: “[T]he developers employ a kind of reductive analysis to select certain notes as more important than others, allowing these important notes to percolate down into the easier difficulty levels, so that only the most structurally important notes make it down into Easy mode” (2007). This need not be true, however, as game developers may have a different definition of “important” than analysts.

Any rhythmic reduction has three main goals: sound like the piece, preserve its essentials, and fit the prescribed environment. For rhythm games, fit involves events per second (difficulty level) over a preservation of structural essentials, focusing instead on “sounding like the piece.” These charts provide a nice foil for students, who often struggle with issues of saliency versus primacy, level of detail, and maintaining an appropriate level of abstraction. (cont.)

In this presentation, I will examine several versions of “Carry On My Wayward Son,” considering how the designers set out to preserve their essentials, showing the parallels with student pitfalls, and wrap up with a discussion of how students can develop their own analytical reductions that are both structurally minded and still “sound like the piece.”

### **“Hitting Reset: Reception, Replay Value, and the Creative Process of Video Game Cover Music”**

Kathleen Kuo (Indiana University)

Studies of video game music tend to focus on the analysis of the original source music or the supporting role that music plays in the context of a game. Less attention has been paid to the relationships between individuals and the original audio, and, in particular, the rearrangements and remixes created by fans and amateur musicians. In this paper I consider alternative methods and approaches to analyzing game music: more specifically, how can ethnomusicological perspectives enrich and contribute to ludomusicological studies? Drawing from three years of ethnographic fieldwork conducted with video game cover bands and orchestra concerts, I discuss the creative process, output, and reception of three stylistically different bands (*Descendants of Erdrick*, *The World is Square* and *Moogleplex*). One goal of this paper is to highlight the fan networks associated with video game cover music; another is to shed light upon the creative process behind these covers. In order to accomplish these goals, I ask: How do video game cover bands navigate digital and physical networks of production in order to create and release their own unique covers? How much leeway do they have when it comes to the reinterpretation of original soundtracks? Finally, what strategies do these musicians use to keep the replay value of their music high within the game music community? By addressing these questions I hope to not only illuminate fan expressions and experiences and their relevance to game music studies, but also expand the methods and scope available to researchers interested in this area.

### **“Teaching the Soundtrack in a Video Game Music Class”**

Neil Lerner (Davidson College)

With the possibility of a growing number of classes studying video game music looking ever brighter, those of us working in this new field find ourselves with relatively few pedagogical models. Yet models for teaching the soundtrack in film-*pace* ludologists—can offer rich possibilities for use in video game studies. Recently in “Visual Representation as an Analytical Tool” (*The Oxford Handbook of Film Music Studies*, ed. Neumeyer, 2013), the pioneering film sound scholar Rick Altman provides what he calls a “thumbnail history of film sound diagrams,” surveying graphs by Eisenstein, Schaeffer, Manvell & Huntley, Gorbman, and Beck. In addition to offering his observations about the relative strengths and weaknesses of various techniques (some of which rely on purely graphic representations, some of which use traditional musical notation, and some of which use images of the sound waves), Altman describes his experience asking a class to generate their own novel ways for graphing film sound. I used Altman’s essay and example in a course I recently taught on video game music, and this presentation will relay what did and did not work in this assignment. It allowed students without much formal musical training (over half of this class at a liberal arts college) to create some insightful graphic analyses. The challenge of having to generate these graphs engaged all of the students in what became an ongoing exercise in problem-solving and creative thinking. Examining some of these graphic analyses will hopefully prompt further discussion on video game music pedagogy.

## **“Sound Effects as Music (or Not): Earcons and Auditory Icons in Video Games”**

Elizabeth Medina-Gray (Oberlin College)

Defining “music” in video games may at first seem to be unproblematic. Familiarly, music involves sustained organization of sound across time according to structures of pitch and/or rhythm. The ongoing musical scores that commonly accompany gameplay therefore most clearly typify “video game music.” However, many games also produce sound effects—brief sounds tied to gameplay actions or events through what Karen Collins has called *kinesonic synchresis*—that contain musical elements such as pitch or rhythm. Indeed, several authors have pointed out that sound effects (even those without musical elements) can become part of a game’s music in particular contexts. (Reale 2014; Mundhenke 2013) Among all the rich and varied sounds that video games produce, then, which sounds might we consider to be “music,” and what implications might this designation have for gameplay?

This paper explores the permeable boundary between musical and non-musical sound in video games through a focus on sound effects. Drawing on a distinction from the field of Human-Computer Interaction between *auditory icons*—sounds with pre-existing real-world associations—and *earcons*—abstract sequences of tones—this paper first proposes a framework for considering individual sounds as either musical or non-musical. Next, this paper considers sound effects in their wider context, and especially together with a game’s musical score, using an analytical method for gauging smoothness between layers of the soundtrack. (Medina-Gray 2014) With this view, a particularly strong agreement between score and sound effect can pull the sound effect into the realm of “music,” while disagreement casts the sound effect more clearly as non-musical sound. This paper treats examples from various games to suggest some ways in which such distinctions might impact gameplay.

## **“On Silence in Video Games”**

Dana Plank-Blasko (The Ohio State University)

Scholars of sound often overlook silence. It is our antithesis as beings in motion: living bodies whose heartbeats create a subtle metronome behind all that we perceive. Yet silence can be pregnant, peaceful, unsettling. Silence is an art of context.

In this paper I examine the impact of four types of silence on video game soundscapes: nondiegetic, structural, psychological, and potential. True nondiegetic silence is rare, representing death or profound isolation. Structural silence allows ambient sound to become salient as music and dialogue cease, creating environmental depth or dramatic tension. Psychological silence is symbolic, created by ambient music that a player stops consciously perceiving. Stasis lulls the player into contemplative inwardness; minimalist textures create discursive spaces for the player to insert herself into emotionally complex game narratives. Potential silence represents a broad range of unheard sounds in games, such as a casual gamer’s muted cell phone. Some sounds are relegated to a silence of the circuits, never heard because the player does not (or cannot) trigger them in the course of play. Potential silence can also describe the experience of a hearing impaired player, missing vital cues in popular games that lack accessibility modifications. Unheard sounds represent unrealized potential in the game, and thus an incomplete (and potentially unsatisfying) experience.

Ludomusicologists investigate soundscapes, aural stimuli that bring the game to life: Link’s swishing sword or the contours of Terra’s leitmotif. Perhaps we can also learn to listen to the spaces between, when silence speaks of perfect peace or impending danger.

### **“Additional Modes of Interactivity Decrease Inhibitors to Flow”**

Joshua Sites (Indiana University)

Flow is a concept of positive psychology, first conceptualized by Csikszentmihalyi, that describes intense focus on the task at hand. It is a pleasant experience in which the senses of self and time are lost. It is similar to the colloquial concept of “being in the zone.” Generative music systems produce music that is ever-changing. These systems take nonmusical inputs and output music. These inputs can be based off of any type of data, including video game states and player interactions within video games. This paper specifically connects the experience of flow to generative music systems in video games through a review of available literature on human/computer interaction, generative music systems, flow, flow in video games, and flow in music listening. Finally, it introduces Additional Modes of Interactivity Decrease Inhibitors to Flow (AMIDIF) theory, which states that linear systems embedded in an otherwise interactive medium are distractors which ultimately get in the way of the user’s experience of flow. Examples of hypotheses arising from AMIDIF are presented and some theories and effects are reinterpreted using this new perspective.

### **“Teaching Video Game Sound Design with Pure Data”**

Paul Turowski (University of Virginia)

A practical understanding of basic sound design is useful for creating and understanding music in any medium. Sound design is especially important in the realm of video games, where sonic interactions can be complex and unpredictable. For game music students, establishing a strong foundation in sound design can aid composition, promote critical listening, and inform perspectives of historical precedents, such as the sonic output of arcade machines and early home consoles.

During Summer 2014, I taught a course on the history, theory, and practice of video game music in which students explored sound with Pure Data (Pd), an open source audio programming environment. Pd has many beneficial features for teaching sound design to beginners, including an intuitive graphical interface, low-level digital signal processing, and an extensible structure. Its flexibility facilitates the creation of custom compositional and educational utilities, such as a dynamic mixer or an adaptive iMUSE-style playback engine, without needing extensive programming experience. Pd patches may even be embedded within games on most platforms, allowing rapid cross-modal prototyping. In my presentation, I will discuss various aspects of using tools like Pd to teach sound design in game music courses, including materials and methods as well as technical and philosophical considerations for future development.

### **“Displacing Nostalgia: Medium-Specific Compositional Strategies in Motoi Sakuraba’s Soundtrack for *Golden Sun*”**

Oren Vinogradov (The University of North Carolina at Chapel Hill)

Since the 2001 release of *Golden Sun*, American and Japanese reviews continue to unanimously praise the game for its soundtrack, often described as “nostalgic” or “classic.” On the Gameboy Advance, a handheld console teeming with hasty software ports from Nintendo’s 1991 Super Nintendo home console and lambasted for its cheap speakers, Motoi Sakuraba’s music for *Golden Sun* stands out for what reviewers imply is a more authentic sonic emulation of 90’s roleplaying experiences. Considering the vast differences in hardware and perceived failures to translate musical materials between consoles, praise garnered by *Golden Sun*’s soundtrack appears unusual.

My study posits that Sakuraba's compositions for *Golden Sun* successfully relied on a deliberate acknowledgement of the Gameboy Advance's hardware failures. Due to the smaller number of digital-audio channels available, Sakuraba could not have composed in the same pseudo-orchestral methods utilized for Super Nintendo fantasy roleplaying games. By comparing his previous work on *Tales of Phantasia* (1995), its 2003 GBA port, and *Golden Sun*, I suggest that Sakuraba focused on manipulating the timber of the GBA's virtual instruments to resemble the resulting sonorities of his 90's compositions. Rather than attempting to recreate his previous style of harmonization or digital instrumentation, Sakuraba references a Super Nintendo soundworld: layering memories of older, more richly textured soundtracks onto music in *Golden Sun*. Based on the unanimity of its reception across time, I argue that *Golden Sun*'s reception is built more on Sakuraba's successful displacement of audience nostalgia than any melodic or harmonic element of his handheld compositions.

# About the Presenters

**Stephen Armstrong** is a musicologist specializing in virtuosity, mysticism, and musical hermeneutics, and he also studies the use of musical structures and metaphors in video games and fiction. He has presented papers on the mystery novels of Dorothy L. Sayers at the Midwest and Allegheny chapter meetings of the American Musicological Society, and he has a forthcoming article in the *Journal of the American Liszt Society*. An active freelance pianist and recitalist, he has performed throughout his native Michigan as well as in Umbria, Italy. Stephen holds an M.A. in musicology and an M.M. in piano performance from Michigan State University.

**David Arditi** is an assistant professor in the Interdisciplinary Studies Program at the University of Texas at Arlington. His research analyzes the relationship between music, technology and culture. *iTake-Over* is Arditi's first book and his research has appeared in *Internet & Surveillance*, *Popular Music & Society*, the *Journal of Popular Music Studies* and *Civilisations*.

**Dominic Arsenault** is an assistant professor in film and game studies at the Université de Montréal. His research and teaching interests include video game narration, screenwriting and interactivity, video game history, video game graphics and visual media, metal music studies, and genre theory. He has published in English and French in various journals and edited books on these topics. He is currently finishing up a book on the Super NES to be published in the MIT Press' *Platform Studies* series. He can be found on Academia.edu for his writings, or on Soundcloud as *Multi-Memory Controller* for his chip metal music creations.

**Michael Austin** is Assistant Professor of Media, Journalism, and Film at Howard University in Washington, D.C. where he teaches courses in radio, music production, and sound design for film and video games; he also serves as coordinator for the School of Communication's Interdisciplinary Studies Program. Austin holds a Ph.D. in Humanities – Aesthetic Studies (with a specialization in Arts and Technology) from the University of Texas at Dallas, and his research is primarily focused on music and new media aesthetics. He is currently editing a collection of essays on music video games – a project under contract by Bloomsbury Academic Press - and is also working on a monograph exploring issues of representation in music videos.

**William Ayers** is a Ph.D student in music theory at the University of Cincinnati, College-Conservatory of Music where he also did his master's degree. He earned his bachelor's degrees in vocal performance and music theory from Belmont University in his home state of Tennessee. Will has presented research at Music Theory Southeast, the South Central Society for Music Theory, the North American Conference on Video Game Music, and the Music and the Moving Image Conference. His research interests include twentieth-century American music, Renaissance vocal polyphony, and music in interactive media. Will is also an avid composer. Most recently, his electronic work *A Study on Indonesian Slendro* was performed at the fall Sonic Explorations concert at CCM.

**Karen Cook** is Assistant Professor of music history at the Hartt School of the University of Hartford. Her main research interests are in medieval and Renaissance music theory, in which she concentrates primarily on the development of mensural notation in the theory and practice of the late medieval period. She also maintains interests in neomedievalism and the uses of early music in contemporary media. She has presented her research at numerous national and international conferences and her essay on the musical soundtrack of *Civilization IV* appeared in *Music in Video Games: Studying Play* (Routledge, 2014). Her current projects include several articles on little-known theoretical treatises, a monograph tracing the development of mensural notation in the fourteenth

and fifteenth centuries, and an article on music in *Civilization V*. In addition to her academic accomplishments, she is an active performer and conductor of early and contemporary music.

**Thomas Doughty** is a Master's Degree student at the University of Florida's Digital Worlds Institute and holds a BA in Anthropology from San Francisco State University. His focus is in digital projection, sound design and electroacoustic music composition. He is working with UF's College of Education to assist in the development of a brain training lab; a series of computer games to foster self-regulation and improve social/emotional outcomes for middle school students with emotional & behavioral disorders (EBD). In addition to being a photo/videographer, Thomas collaborated on the art installation *CNTRL-SPACE* which utilized Max/MSP and Jitter, WebGL, and interactive MIDI devices to create a participatory digital projection environment exhibit that explored the illusion of control in a technocratic society.

**William Gibbons** is Assistant Professor of Musicology in the TCU School of Music and Administrative Fellow in the J.V. Roach Honors College. He is the author of *Building the Operatic Museum: Eighteenth-Century Opera in Fin-de-Siècle Paris* (Rochester, 2013) and co-editor of *Music in Video Games: Studying Play* (Routledge, 2014), and has published and presented extensively on topics in game music and opera culture. Upcoming projects include chapters in *Debugging Game History: A Lexicon* (MIT Press), *Ludomusicology: Approaches to Video Game Music*, (Equinox) *The Palgrave Handbook of Sound Design and Music in Screen Media*, and *The Routledge Companion to Screen Music and Sound*. His newest project is the book *Unlimited Replays: The Art of Classical Music in Video Games*, under contract with Oxford University Press.

**Julianne Grasso** is a PhD student of Music History and Theory at the University of Chicago. She received her undergraduate degree at Princeton University, where she completed a senior thesis in 2010 on the topic of musically mediated experiences of playing video games. Most recently, she helped organize the graduate student game studies conference *INTERPLAY* in Chicago in October 2014. Along with her undergraduate degree, she earned a certificate in Neuroscience, and her current research interests accordingly intersect with topics in music perception and cognition.

Music Technologist **Rob Hamilton** works at the intersections of music, technology and cognition, with particular interest in the roles of procedural sound and music in interactive media. As a researcher at Stanford University's CCRMA and Smule, Inc. he has designed and developed unique systems for interactive musical performance, mobile and web-based music applications and procedural audio and music for games. His writings and research have been presented at international academic conferences such as AES, NIME, ICMC, DAFx and CMMR, in journals like *Leonardo Music Journal*, *Journal for Multimodal User Interfaces*, *Lecture Notes in Computer Science* (Springer-Verlag) and *Organised Sound*, as well as at commercial venues and trade shows such as GDC, NAMM and Mac World. Dr. Hamilton holds degrees from Stanford University, the Peabody Institute of the Johns Hopkins University, and Dartmouth College. More information: [robhamilton.io](http://robhamilton.io) or @robertkhamilton

**Christopher Hopkins** is an adjunct music professor at the C.W. Post Campus of Long Island University and the Grant Campus of Suffolk County Community College. He will be graduating from Five Towns College with a Doctor of Musical Arts degree in Music History and Literature. His dissertation titled "Chiptune Music: An Exploration of Compositional Techniques in Sunsoft Games for the Nintendo Entertainment System and Famicom From 1988-1992" is a landmark work in honoring the composers and songs which defined early game music. He used his research to develop an undergraduate course in video game music history and composition for Long Island University. He holds a specialist certificate in Orchestrating and Producing Music for Film and Games from Berklee College of Music. Prof. Hopkins is the organist and director of the Youth and Spanish Music Ministries at his local church on Long Island.

**Enoch Jacobus** holds a B.A. from Asbury University, where he studied music composition under Dr. Ronald Holz, an M.M. in music theory (with composition) from the University of Louisville, and a Ph.D. in music theory from the University of Kentucky, where he completed a [dissertation](#) that developed geometric models and methods for describing (or prescribing) parsimonious seventh-chord harmonic space. His professional interests include music theory pedagogy, neo-Riemannian theory, sixteenth-century polyphony, and ludomusicology. He is particularly fascinated by how music intersects with other disciplines, how different disciplines can be understood in terms of one another, and how technology can be used more effectively in the classroom to enhance learning.

**John Knoedler** is currently a candidate in Music Theory at the University of Michigan, completing his dissertation on possibilities for extending methodologies of tonal analysis. His interest in music games began early in his graduate school career, when a friend came over one afternoon, carrying his copy of *Guitar Hero II* and two controllers. He said: “You’re gonna play it, and you’re gonna like it.” Mortification quickly led to fun, and fun led to monthly graduate-student gatherings to enjoy company, food, and music making. Now the fun is coming back to inform some of his research efforts.

**Kathleen Kuo** is a second year PhD student in Ethnomusicology at Indiana University with a planned minor in Central Eurasian Studies. In addition to her studies at Indiana, she also currently works as a graduate assistant at the Archives of Traditional Music. Kathleen obtained her BA in Psychology from the University of Chicago in 2011 and her MA in Ethnomusicology from Tufts University in 2013, where she wrote her master’s thesis on stickgame songs from the Flathead Indian Reservation. Her research interests include the psychology of music, Central and East Asian music and organology, archiving and preservation, and video game music. More specifically, she is interested in video game music from the perspective of concertgoers and tribute bands and has previously presented at graduate conferences on the Distant Worlds concert tour.

**Neil Lerner** is Professor of Music at Davidson College, where he co-coordinates the program in Film & Media Studies and teaches courses on film and video game music. His study of early video game music appears in the *Oxford Handbook of Film Studies*. He edited the journal *American Music* between 2010 and 2013, and has edited or co-edited four books, including *Music in Video Games: Studying Play*. With Will Gibbons and Steve Reale, he co-organized the first North American Conference for Video Game Music in 2014.

**Elizabeth Medina-Gray** is a Visiting Assistant Professor of Music Theory at Oberlin College. She received her Ph.D. in music theory from Yale University in 2014, where she completed her dissertation on the modular structure and function of music in early 21st-century video games. Her research focuses on the analysis of video game music with respect to its dynamic and indeterminate qualities. Her work appears in *Music in Video Games: Studying Play* (Routledge 2014), and she has articles forthcoming in *Ludomusicology: Approaches to Video Game Music* (Equinox Publishing) and *The Routledge Companion to Screen Music and Sound*.

**Andréane Morin-Simard** is a doctoral student in film studies at the University of Montreal. Her research focuses on the interaction between popular music and audio-visual media and the effects of intertextuality and interference on the cinematic, televisual and video gaming experience. She has been involved in various research projects on videogame genres within the research team LUDOV (formerly Ludiciné) from the University of Montreal. She is also on the editorial board of the online academic journal *Kinephanos*, which addresses issues related to popular media.

**Winifred Phillips** is an award-winning game composer with more than 11 years of experience in the game industry. Some of her video game credits include six games in the *LittleBigPlanet* franchise (including *LittleBigPlanet 3*), *Assassin's Creed Liberation*, *Total War Battles: KINGDOM*, *God of War*, *The Da Vinci Code*, *Speed Racer*, *Shrek the Third*, and *Spore Hero*, among many others. Phillips is also the author of the bestselling book, *A Composer's Guide to Game Music* (The MIT Press, 2014), which recently won a GMA Book Award Gold Medal from the Global Music Awards, and was described by The Boston Globe as “the first book designed to help experienced musicians brave the transition to the world of game composing.” Her book was hailed by Sound on Sound magazine as “partly educational and partly inspirational... a great introduction to this specialist art.” Music Connection Magazine added that “Phillips’ hands-on insights and advice make this one a keeper,” and Film Score Monthly praised the book as “a touchstone academic achievement.”

She has received an Interactive Achievement Award / D.I.C.E. Award from the Academy of Interactive Arts and Sciences, three Hollywood Music in Media Awards, five Game Audio Network Guild Awards, three Global Music Awards, an IGN Best Score Award, a GameSpot Best Music Award, a GameZone Score of the Year Award, a GameFocus Award, and three Gracie Awards from the Alliance of Women in Media. She has been profiled in books such as *Keeping Score* by Tom Hoover, *Cash Tracks* by Jeffrey P. Fischer, *In Her Own Words: Conversations with Composers in the United States* by Dr. Jennifer Kelly, and in *Music Connection Magazine*, which described her as a “Superstar of video game music.”

**Dana Plank-Blasko** is a Ph.D candidate in historical musicology at The Ohio State University. She holds a Bachelor of Arts in violin performance and music history from Case Western Reserve University and the Cleveland Institute of Music, and a Masters of Music in violin performance from Cleveland State University. She remains active as a chamber musician. Her research interests include minimalist opera, late 16th century sacred music, ludomusicology, and musical disability studies. Her dissertation focuses on the aural representations of injury, disease, and mental illness in 8- and 16-bit soundscapes, treating these cultural artifacts as important sites of discourse that replicate larger socio-cultural constructions of the meanings of ability and disability.

**Joshua Sites** is a graduate student in the Department of Telecommunications at Indiana University. His primary research interest is cognition and perception of mediated music and audio. Joshua also has professional experience as an audio engineer and continues to work in the field when graduate studies permit. His thesis is on the impact of generative music systems in video games and the experience of flow. The thesis utilizes psychophysiological measures to indicate emotional states and cognition, combined with self-report measures. AMIDIF represents a theoretical underpinning to his thesis work.

**Paul Turowski** (<http://paulturowski.com>) is a composer, intermedia artist and performer originally from Baltimore, Maryland. He holds a B.M. in composition from Towson University and an M.M. in Intermedia Music Technology from the University of Oregon. He is currently a PhD candidate in the Composition and Computer Technologies program at the University of Virginia, where he is completing his dissertation on interactive notational systems. This involves research in areas like digital signal processing, graphics programming, and game studies. His most recent creative work, *Hyperions*, for solo instrument and video game score, was commissioned by the Foundation for Emerging Technologies and Arts (FETA) for the Cellotronic Games competition. In his free time, he enjoys playing video games, watching film and animation, tinkering with analog circuits, and playing the clarinet.

**Oren Vinogradov** is a doctoral candidate in musicology at the University of North Carolina at Chapel Hill, where he is writing a dissertation on the modern history of program music as a concept, entitled “Theorizing Program Music: Schumann, Liszt, and Wagner as Critic-Composers.” Originally hailing from Israel, his previous degrees include a bachelor’s in Liberal Arts with focuses in Music and Philosophy from Simon’s Rock College of Bard, as well as a master’s in Musicology from UNC Chapel Hill, where he completed a thesis on Fred Astaire, gender performativity, and the American fashion industry. He has presented papers at the International Conference on Nineteenth-Century Music, the North American Conference on 19th-Century Music, the American Musicological Society, and the annual meeting of the Royal Music Association.

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