CENTER FOR THE PERFORMING AND CINEMATIC ARTS
Boyer College of Music and Dance

Music Technology Graduate Capstone Presentations

Music Studies Department
Dr. Steven Zohn, chair

Monday, May 5, 2025 at 5:00 PM
Rock Hall Auditorium
1715 N. Broad Street
Philadelphia, PA 19122

Master of Science
Music Technology
Capstone Project Presentations

Program

5:00 PM	**John Enrico De Petris** *Chordly!*
5:20 PM	**Kyle Sperry** *Chromaverse*
5:40 PM	**Michael Proulx** *Inner Mechanisms*
6:00 PM	**Siddhant Tripathi** *The Three Realms*
6:20 PM	**INTERMISSION**
6:35 PM	**Jack Heroux-Skirbst** *Thrive*
6:55 PM	**Aditya Gokhe** *Algorithmic Mixing Assistant*
7:15 PM	**Negar Ghasemi** *Sonidoh: A Force-Sensitive Audio-Expressive Dough*

Program Notes

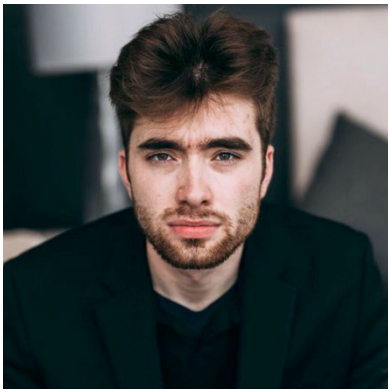
CHORDLY!

JOHN ENRICO DE PETRIS

ADVISOR: DR. ADAM VIDIKSIS

Chordly! is an interactive music theory study tool designed to help students practice harmonic dictation. Created using Max MSP and JavaScript, the program follows traditional music theory conventions and features over 100 unique chords across five difficulty modes, while also allowing users to create personalized exercises. Each game is exactly eight chords long, offering consistent practice while allowing creative flexibility.

John developed *Chordly!* in response to seeing students face challenges with harmonic dictation while serving as a music theory TA lab instructor, aiming to provide a useful, enjoyable tool for individual practice. The long-term goal is to release *Chordly!* on a website and expand it into a comprehensive music theory learning platform.



JOHN ENRICO DE PETRIS is a sound engineer, musician, programmer and educator originally from Monroe, New York. He is pursuing a Master of Science in music technology at the Boyer College of Music and Dance at Temple University, finishing his sixth and final year in the school's music technology program. Some of his recent and current projects include Jam Sesh, a three-player music-sandbox video game developed in Max MSP; live mixing WHIP's Rocktober concert; and collaborating with RigJuice, a local North Philly band, by recording, mixing and soon-to-be releasing three of their singles. In addition to his creative work, John has served as chief engineer for WHIP, Temple University's student-run radio station,

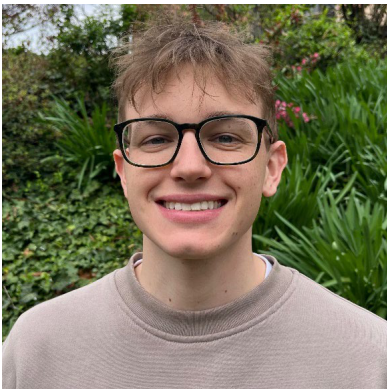
for the past two years. He has also worked as a teaching assistant for music theory, sound recording and sound editing courses, supporting students in both technical and artistic development. After graduating, he plans to work in live sound or audio programming. John would like to thank his family, friends and the music technology faculty for their guidance and support.

CHROMAVERSE

KYLE SPERRY

ADVISOR: DR. MICHELLE TEMPLE

Chromaverse explores the dynamic relationship between color and music, examining how these sensory elements interact. Our individual experiences impact our personal emotional connections to both color and music. *Chromaverse* encourages viewers to reflect on these connections and broaden the understanding of their relationship to these elements.



KYLE SPERRY is a graduate student in music technology with a technical foundation in audio engineering and music production. Through his recent work, he brings both creative and analytical approaches to sound design and multimedia expression. His interests lie in live mixing and post-production editing.

INNER MECHANISMS

MICHAEL PROULX

ADVISOR: DR. ADAM VIDIKSIS

Inner Mechanisms is a playable demo of a horror video game that I have been working on this past semester. The gameplay involves navigating a large mansion by solving puzzles and avoiding enemies that are drawn to the sound of the player's movement. This project focuses on creating an immersive audio environment by utilizing the robust audio processing capabilities of Unreal Engine 5 and Wwise paired together. Musical layers modulate and are randomized on repetition, sound effects adjust their reverb settings and localization based on player position, and the player's health value scales the intensity of the game's sound design. Instead of viewing audio as an accompaniment to gameplay, this project hopes to have audio actively inform it.

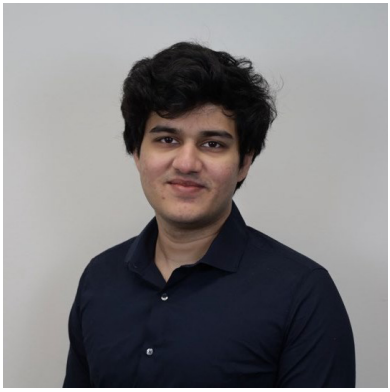
MICHAEL PROULX is a graduate student at Temple University working towards a master of science in music technology. While his primary focus is sound design for digital media, his musical interests vary from composition and production to signal processing and circuit design.

THE THREE REALMS (HEAVEN | EARTH | HELL)

SIDDHANT TRIPATHI

ADVISOR: DR. MICHELLE TEMPLE

The Three Realms (**Heaven | Earth | Hell**) is a three-track electronic EP that explores the emotional and sonic contrasts between different realms of existence. **Heaven** features ethereal, ambient textures with lush reverb, soft pads and piano, creating a serene and nostalgic atmosphere. **Earth** incorporates industrial percussion, electric guitar and evolving bass lines, representing a grounded, textural sound. **Hell** contrasts with heavy bass, distorted synths and aggressive percussive elements, evoking chaos and destruction. This EP transcends traditional genres, offering a powerful and immersive sonic journey that captures the essence of emotional and atmospheric storytelling through sound.



SIDDHANT TRIPATHI is a music technology graduate student passionate about sound design and electronic music. With a focus on immersive audio for games and interactive media, he combines technical expertise with creative storytelling to craft compelling sonic experiences. His work is inspired by a wide range of styles, drawing influence from artists like Skrillex, Fred again..., Four tet, Daft Punk, Pan & Polo and many more.

ALGORITHMIC MIXING ASSISTANT

ADITYA GOKHE

ADVISOR: DR. ADAM VIDIKSIS

Mixing multi-track audio into a cohesive and polished single track is both a creative and technical endeavor, requiring a deep understanding of sonic elements and their balance. Achieving the desired sound while meeting industry standards can be a challenging task. This project proposes a music mixing assistant powered by a neural network that decomposes and analyzes reference tracks at an instrumental level. The assistant compares these reference tracks with the user's personal mix, offering personalized feedback to improve the audio mix. The first iteration of the software utilizes Open-Unmix for audio source separation, breaking down reference tracks into components such as vocals, drums, bass and other instruments. It also extracts key features like LUFS (Loudness Unit Full Scale), dynamic range, panning, and generates spectrograms for detailed analysis. By comparing these features, providing actionable feedback to help enhance the overall audio mix.

ADITYA GOKHE is a passionate graduate student pursuing a Master of Science in music technology with a solid foundation in audio processing, post-production and studio assistance. He has worked with India's oldest record label, contributing to audio editing, studio support, in order to build an educational application. He is proficient in DAWs such as Pro Tools, Ableton Live and Logic Pro, as well as programming languages like C++, Python and Max/MSP. He is a skilled musician with a deep understanding of various instruments, enhancing my approach to both technical and creative aspects. Current interests include the intersection of new technologies and music and developing technologies for the next generation of creators.

THRIVE

JACK HEROUX-SKIRBST

ADVISOR: DR. MICHELLE TEMPLE

Thrive is an interactive multimedia installation that explores life, growth, and death from a queer perspective, examining the impact that audio can have on visual art to create an immersive experience.

JACK HEROUX-SKIRBST is an artistic genius and rock star hailing from middle of nowhere Pennsylvania. 10,000 hours tickling the ivories, a brisk mastery in the art of audio engineering, and a compulsion to attempt every artistic medium under the sun has recently developed into an obsession to combine these passions of sound and visual art. Limited only by their unparalleled virtuosity and the contents of their recycling bin, Jack is a force to be reckoned with, an eccentric whirlwind of creativity, and humble too.

SONIDOH: A FORCE-SENSITIVE AUDIO-EXPRESSIVE DOUGH

NEGAR GHASEMI

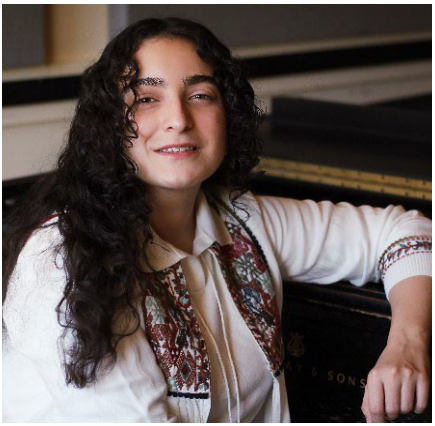
ADVISOR: DR. ADAM VIDIKSIS

This project explores the creation of a tactile, force-sensitive musical instrument using regular conductive playdough as a pressure-responsive interface. By interacting with the dough—through gestures such as stretching, compressing, squeezing or detaching—users produce changes in electrical resistance. These changes are measured using an Arduino and interpreted in Max/MSP to generate and manipulate sound.

Rather than relying on traditional sensors, the dough itself functions as the sensor, offering a direct and embodied way to control sonic output. The goal is to explore how physical gestures can be translated into expressive audio responses using real-time data processing. While specific gesture mappings are still in development, the system is designed to support both continuous modulation (e.g., pressure-based changes) and discrete triggering (e.g., sudden movements or separations).

Sound design elements include synthesized textures, noise-based effects and sampled instruments, all shaped by the user's interaction with the material. Inspired by experimental instruments such as Martin Marier's sponge, this project combines playful material engagement with technical sound design to create a unique and intuitive interface.

The resulting prototype is part instrument, part sculpture—inviting users to mold, press and reshape the dough as a means of musical expression. Through this hands-on interaction, the project aims to reimagine the relationship between touch, material and sound in the context of multimedia performance and interactive art.



NEGAR GHASEMI is a Philadelphia-based pianist, composer, educator and emerging music technologist. Born and raised in Iran, she began her musical training at age four in her mother's music school, where she quickly connected with the piano as both discipline and expressive outlet. As a child, she performed internationally at festivals and competitions, broadening her horizons within the global classical music scene. She earned a Bachelor of Music in piano performance from Temple University, studying with Sara Davis Buechner, and worked as an accompanist for the university's dance department and local choral ensembles. Her artistic philosophy centers around the subconscious and the body's natural processes. An interest in physiology and anatomy led her to cultivate a more intentional and embodied relationship with the instrument, emphasizing physiological and psychological awareness, authenticity and self-guided learning. Negar's current work explores the intersection of sensor integration, sound design and creative coding, using interactive systems to expand musical expression. Just as she once investigated movement and posture to foster healthier piano technique, she now delves into psychoacoustics and sound perception, continuing a lifelong interest in the intricate relationship between body, mind and sound.

Boyer College of Music and Dance

The Boyer College of Music and Dance offers over 500 events open to the public each year. Students have the unique opportunity to interact with leading performers, composers, conductors, educators, choreographers and guest artists while experiencing a challenging and diverse academic curriculum. The Boyer faculty are recognized globally as leaders in their respective fields. Boyer alumni are ambassadors of artistic leadership and perform with major orchestras, opera and dance companies, teach at schools and colleges and work as professional music therapists, choreographers and composers. Boyer's recording label, BCM&D records, has produced more than thirty recordings, five of which have received Grammy nominations.

boyer.temple.edu

The Center for the Performing and Cinematic Arts

The Center for the Performing and Cinematic Arts consists of the Boyer College of Music and Dance, School of Theater, Film and Media Arts, the George and Joy Abbott Center for Musical Theater and the Temple Performing Arts Center. The School of Theater, Film and Media Arts engages gifted students with nationally and internationally recognized faculty scholars and professionals. A hallmark of the School of Theater, Film and Media Arts is the Los Angeles Study Away program, housed at historic Raleigh Studios. The George and Joy Abbott Center for Musical Theater engages visiting performers, guest artists, set designers, playwrights and other Broadway professionals. The Temple Performing Arts Center (TPAC), a historic landmark on campus, is home to a state-of-the-art 1,200 seat auditorium and 200 seat chapel. More than 500 concerts, classes, lectures and performances take place at TPAC each year.

arts.temple.edu

Temple University

Temple University's history begins in 1884, when a young working man asked Russell Conwell if he could tutor him at night. It wasn't long before he was teaching several dozen students—working people who could only attend class at night but had a strong desire to make something of themselves. Conwell recruited volunteer faculty to participate in the burgeoning night school, and in 1888 he received a charter of incorporation for "The Temple College." His founding vision for the school was to provide superior educational opportunities for academically talented and highly motivated students, regardless of their backgrounds or means. The fledgling college continued to grow, adding programs and students throughout the following decades. Today, Temple's more than 35,000 students continue to follow the university's official motto—Perseverantia Vincit, or "Perseverance Conquers"—with their supreme dedication to excellence in academics, research, athletics, the arts and more.

temple.edu