LONGY
School of Music of Bard College

Northeastern University
College of Arts, Media and Design

NEC
New England Conservatory

TENOR BOSTON 2023

MONDAY MAY 15 TO WEDNESDAY MAY 17

https://tenorboston23.sites.northeastern.edu

CONFERENCE PROGRAM

8th INTERNATIONAL CONFERENCE ON TECHNOLOGIES FOR MUSIC NOTATION & REPRESENTATION

erc
DigiScore

TABLE OF CONTENTS

Committees

Organizing Committee

Anthony Paul De Ritis, Northeastern University (Conference Chair)
Jeremy Van Buskirk, Longy School of Music of Bard College (Paper Chair)
John Mallia, New England Conservatory (Sonic Works Chair)
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Rama Gottfried (Zurich University of the Arts, Switzerland)
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Georg Hajdu (Hochschule für Musik und Theater Hamburg, HfMT, Germany)
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Craig Vear: De Montfort University, Leicester – UK

Welcome to TENOR 2023

Welcome to TENOR 2023!

The 8th International Conference on Technologies for Music Notation and Representation (TENOR) in Boston, Massachusetts, USA, is hosted by the Department of Music at Northeastern University, the Longy School of Music of Bard College, and the New England Conservatory.

Welcome to Boston!

This year we focus on the theme "Representation and Perception of Music Structure," which initiated from a conversation with Keynote speaker Morwaread Farbood, Associate Director of Music Technology at New York University. It was Professor Farbood who suggested we invite a prestigious musicologist to balance her technological background and current research agenda. After a discussion with several colleagues, the name Holly Watkins, Professor of Musicology at the Eastman School of Music, kept coming up – we are thrilled to have Professor Watkins speak on "Conception and Perception, Structure and Form: Thoughts on the Representation of Animal Song."

Tim Perkis, our featured Keynote Workshop presenter, is co-founder of "The Hub," which received the Giga-Hertz Prize from ZKM in Germany, "for lifetime achievement in the field of electronic music," joining the ranks of other Gigahertz Prize winners Pierre Boulez, Brian Eno, Jean-Claude Risset and Laurie Anderson. Perkis will be presenting together with Gino Robair, composer and visual artist, who explores how non-standard and graphical notations influence interpretive performances across different media — music, dance, video and theatre. Robair was also an editor of Electronic Musician magazine for 10 years.

In four rather spectacular concerts, at the Longy School of Music of Bard College, and the New England Conservatory, we are excited to present two DigiScore commissioned composers, Ingrid Laubrock and Kitty Xiao; as well as the winning and runner-up compositions of DigiScore's "NeoScore" competition, written by Xavier Davenport and Lauren McCall. Many thanks to Craig Vear, Sandeep Bhagwati, Solomiya Moroz, and DigiScore (an ERC Project), whose sponsorship made several of the concert works being presented at our event possible.

Performing these new works, and many of works selected from TENOR BOSTON 2023's call for contributions, are three Ensembles-in-Residence: Lisa Mezzacappa, acoustic bassist, and Jason Levis, drumner, together make up the ensemble duoB; the award-winning ensemble Loadbang, a New York City-based new music chamber group for mixed ensemble of trumpet, trombone, bass clarinet, and baritone voice; and members of the Boston-based musical institution, The Callithumpian Consort, directed by Stephen Drury.

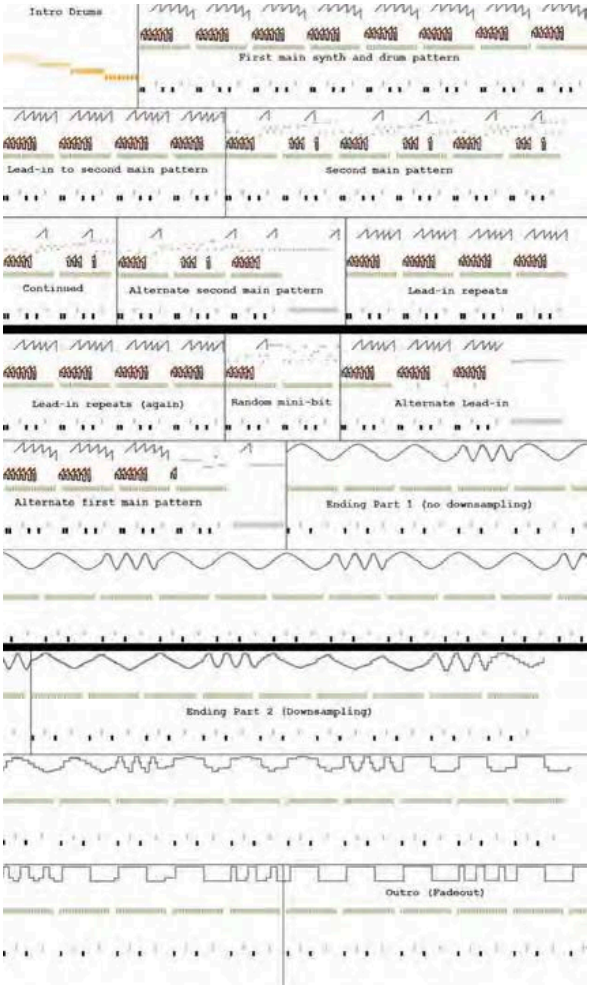
In total, TENOR BOSTON 2023 offers 2 keynote presentations, 1 keynote workshop, 21 papers, 5 workshops, 8 demos, and 4 concerts of 21 works.

THANK YOU to all authors and composers who submitted papers to TENOR BOSTON 2023. There were many brilliant submissions, many more than we could accommodate in our conference. Special thanks to the external reviewers who participated in our double-blind external review process for their comments and service to the profession.

Special thanks to members the Organizing Committee, in particular the representatives of the co-hosting institutions, Jeremy Van Buskirk from the Longy School of Music of Bard College, and John Mallia from the New England Conservatory. Who would have imagined that nearly 25 years ago when we first met that we might have the opportunity to collaborate on such an exciting event? Thank you so much for your dedication! Special thanks also to my colleague Victor Zappi, whose continuous support went way beyond being Scientific Program Chair – the expertise that Professor Zappi has brought to this enterprise from his experiences working in several other international conferences has been invaluable. Special thanks to Bella Mona Designs, for her work on the TENOR BOSTON 2023 website; and to Rebecca McTeigue for her work on this beautiful program booklet and posters. Lastly, my greatest thanks goes to Daniel Strong Godfrey, Chair of the Music Department at Northeastern University. Professor Godfrey's 100% backing of this endeavor from the very first time I suggested that we host TENOR in Boston is what has given this conference life – Thank you!

And thanks to YOU – with scholars and creators who want to share their work, there is no conference! I hope everybody has a wonderful visit to Boston and an amazing TENOR 2023!

Anthony Paul De Ritis
For the TENOR BOSTON 2023 Organizing Committee



Short Circuit by Daft Punk
Image by Ivan Berlin

Visual Representations from "Music in Everyday Life"

Throughout the program booklet we have included several images, the result of a prompt given by Northeastern University Professor James Gutierrez, in his course "Music in Everyday Life." The prompt to the assignment was as follows:

In this assignment you will create a visual representation of a song, coming up with ways to describe its sound without relying on Western notation. The assignment is thus both creative and analytical. Think about how you can use visuals to show us what features of the song are important, as well as qualities or associations. The result will be a "score for listening" (as the visualization of Ligeti's "Artikulation") based on what you hear in the song. The goal is to create a rich visual representation that provides insight into the song.

According to Professor Gutierrez, students "design a system for representing all the detail they can hear in a song. It's really an exercise in listening deeply, but the resulting visuals are often interesting through a cognition lens."

MONDAY MAY 15

Northeastern University; Longy School of Music of Bard College

8:00 am — **Sign in / Continental Breakfast / NORTHEASTERN UNIVERSITY**
Ryder Hall Lobby

9:00 am — **Keynote 1**
NU; Ryder Hall, Rm. 429
Morwaread Farbood
Representation and Perception of Music Structure

Session 1: Perception, Cognition, and Creativity I
Moderator: Anthony De Ritis; NU; Ryder Hall, Rm. 429

10:00 am
Jaslyn Robertson
Structuring Censorship in Digital Scores

10:20 am
Matthias Nowakowski, Aristotelis Hadjakos
Online Survey on Usability and User Experience of Music Notation Editors

10:40 am
Psyche Loui
BP Sequencer: A Low-Barrier-to-Entry Assessment Tool for Musical Creativity

11:00 am — **Coffee BREAK / Flex Time**

Session 2: Non-Standard Notation and Alternative Scores I
Moderator: Psyche Loui; NU; Ryder Hall, Rm. 429

11:20 am
Ciaran Frame
Notating Experiences: A New System for Visual Documentation in Instrument Design

11:40 am
Jean-Michaël Celerier, Akané Levy [remote]
A notation system for distributed media art

12:00 pm — **Workshop Keynote**
NU; Ryder Hall, Rm. 354
Tim Perkis, Gino Robair
Two Automatic Score-Presentation Systems to Direct and Shape Improvisational Music Practices

1:00 pm — **LUNCH (by Northeastern University)**
Ryder Hall Lobby

2:00 pm — **Shift to LONGY SCHOOL OF MUSIC OF BARD COLLEGE**

2:40 pm

WORKSHOP
Longy; Zabriskie House, Alternative Performance Space
Georg Hajdu
Hybridity in Composing for and Performing with Microtonal Ensembles

WORKSHOP
Longy; Rey-Waldstein Building, Rm. N-1
Jean-Michaël Celerier [remote]
Ossia score 3 workshop

4:00 pm

WORKSHOP
Longy; Zabriskie House, Alternative Performance Space
Ryan Smith
The Animated Notation Workshop 2.0

WORKSHOP
Longy; Rey-Waldstein Building, Rm. N-1
Shane McKenna
New Notation and Technology: The Revolution in Music Education

5:00 pm	**CONCERT 1 – Longy School of Music of Bard College**
6:30 pm	**DINNER (on your own)**
8:00 pm	**CONCERT 2 – Longy School of Music of Bard College**
9:00 pm	**Informal Gatherings**

TUESDAY MAY 16

Northeastern University; Longy School of Music of Bard College

Northeastern University

NEC New England Conservatory

8:00 am	**Sign in / Continental Breakfast / NORTHEASTERN UNIVERSITY** Ryder Hall Lobby
9:00 am	**Keynote 2** NU; Ryder Hall, Rm. 429 Holly Watkins *Conception and Perception, Structure and Form: Thoughts on the Representation of Animal Song*
	Session 3: Non-Standard Notation and Alternative Scores Moderator: Anthony De Ritis; NU; Ryder Hall, Rm. 429
10:00 am	Nicola Privato, Thor Magnusson, Einar Torfi Einarsson *The Magnetic Score: Somatosensory Inscriptions and Relational Design in The Instrument-Score*
10:20 am	David Kim-Boyle [video presentation] *The Reactive Score*
10:40 am	Jack Armitage, Thor Magnusson *Agential Scores: Artificial Life for Emergent, Self-Organising and Entangled Music Notation*
11:00 am	**Coffee BREAK / Flex Time**
	Session 4: Score Processing and Generation I Moderator: Ronald Bruce Smith; NU; Ryder Hall, Rm. 429
11:20 am	Gen Hori [remote] *Enumerating Left Hand Forms for Guitar Tablatures Using Non-Decreasing Finger Numbers and Separators*
11:40 am	Claudio Panariello, Emma Frid [remote] *SuperOM: A SuperCollider Class to Generate Music Scores in OpenMusic*
12:00 pm	Ilana Shapiro [remote] *MusAssist: A Domain Specific Language for Music Notation*
12:20 pm	**Coffee BREAK / Flex Time** Ryder Hall Lobby
	Session 5: New Approaches to Visualizing Harmonic Content Moderator: Anthony De Ritis; NU; Ryder Hall, Rm. 429
12:40 pm	Hiroyuki Yamamoto, Satoshi Tojo [remote] *Beyond The Basic-Space of Tonal Pitch Space: Distance in Chords and Their Interpretation*
1:00 pm	Manuel Gaulhiac, Xiao Xiao, Jean-Marc Chouvel *Harmonic Maps – Interactive Visualization Of 3-Note Chord Spaces Based on Spectral Structures*
1:20 pm	**LUNCH (by Northeastern University)** Ryder Hall Lobby
2:00 pm	**Shift to NEC (NEW ENGLAND CONSERVATORY)**

2:30 pm

DEMO
NEC; Student Life and Performance Center, Prevost 315
Viktor Khachtchanski, J. Byron Wise [remote]
Buddha Orchestra – Music Found in Images

WORKSHOP
NEC; Pierce Hall; SB 118
Lisa Mezzacappa (2:30pm – 3:30pm)
Improvisation Workshop

3:00 pm

DEMO
NEC; Student Life and Performance Center, Prevost 315
Craig Vear
Jess+ an AI/Robot Digital Score that operates as a creative interface between an ensemble of musicians of mixed abilities

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3:30 pm

DEMO
NEC; Student Life and Performance Center, Prevost 315
Ilana Shapiro [remote]
MusAssist: A Domain Specific Language for Music Notation

DEMO
NEC; Pierce Hall; SB 118
Nicola Privato, Thor Magnusson, Einar Torfi Einarsson
The Magnetic Score: Somatosensory Inscriptions and Relational Design in the Instrument-Score

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4:00 pm

DEMO
NEC; Student Life and Performance Center, Prevost 315
James Tsz-Him Cheung
Creating Common Practice Notation in Symbolist

DEMO
NEC; Pierce Hall; SB 118
Jack Armitage, Thor Magnusson
Agential Scores: Artificial Life for Emergent, Self-Organising and Entangled Music Notation

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4:30 pm

DEMO
NEC; Student Life and Performance Center, Prevost 315
Dard Neuman, Jonathan Myers
Interactive Digital Transcription Platform for Oral Melodic Traditions

DEMO
NEC; Pierce Hall; SB 118
Craig Vear
Neoscore – Notation without bars

5:00 pm — **CONCERT 3 – NEC**

6:30 pm — **DINNER (on your own)**

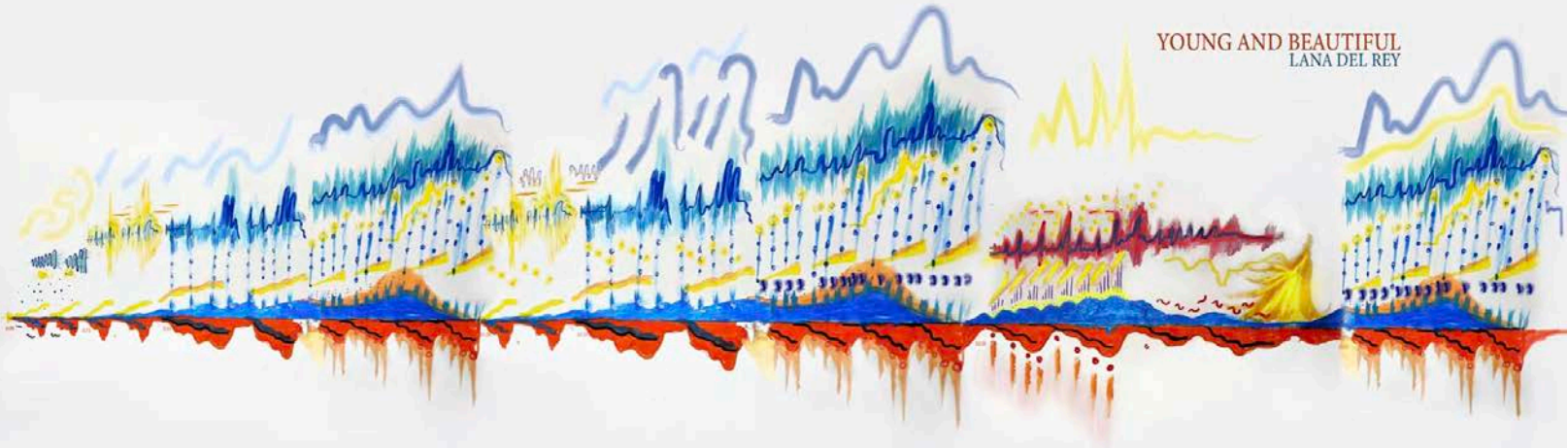
8:00 pm — **CONCERT 4 – NEC**

9:00 pm — **Informal Gatherings**

WEDNESDAY MAY 17

Northeastern University; Longy School of Music of Bard College

8:00 am	**Sign in / Continental Breakfast / NORTHEASTERN UNIVERSITY** Ryder Hall Lobby
	Session 6: Score Processing and Generation II Moderator: Victor Zappi; NU; Ryder Hall, Rm. 429
9:00 am	Markus Lepper, Baltasar Trancón Y Widemann *Beam It Up! — A Classification Grid for Historic and Contemporary Practices Of Beaming By Mathematical Re-Modelling*
9:20 am	Georg Hajdu, Xiao Fu *Sonification, Musification and Dramafication of Astronomical Data in The Multimedia Production "A Space Journey"*
9:40 am	Esa Onttonen *Collaborative Live Composition with Frankie*
10:00 am	**Coffee BREAK / Flex Time** Ryder Hall Lobby
	Session 7: Interpreting Creative Spaces Moderator: James Gutierrez; NU; Ryder Hall, Rm. 429
10:20 am	Anna Shvets, Samer Darkazanli [remote] *Non-Linear Volumetric Music Composition in A VR Context: Project "Omega"*
10:40 am	Jonathan Bell [remote] *Maps As Scores: "Timbre Space" Representations in Corpus-Based Concatenative Synthesis*
11:00 am	Iran Sanadzadeh, Cat Hope *Interpreting notated works using the Terpsichora Pressure-Sensitive Floors*
11:20 am	**Coffee BREAK / Flex Time** Ryder Hall Lobby
	Session 8: Perception, Cognition, and Creativity II Moderator: Anthony De Ritis; NU; Ryder Hall, Rm. 429
11:40 am	Craig Vear, Solomiya Moroz *The Digital Score: a review of research* spanning 2022-23
12:00 pm	Frankie Dyson Reilly *Judging A Score by Its Cover: The Role of Visual Design in Interpreting Colour Scores*
12:20 pm	Kenneth Fields [video presentation] Sheng Yijing: Book of Sound Changes
12:40 pm	**Announcement on TENOR 2024, Germán Toro-Pérez and Rama Gottfried; Institute for Computer Music and Sound Technology (ICST), Zurich University of the Arts**
12:50 pm	**Shift to Closing Reception**
1:00 pm	**LUNCH – Closing Reception – Northeastern University**
3:00 pm	**END of TENOR BOSTON 2023**



Young and Beautiful by Lana Del Rey
Image by Jack Deutsch

KEYNOTE SPEAKER

MORWAREAD FARBOOD

Associate Director of Music Technology, New York University

Monday, May 15, 2023 – 9:00am; Rm. 429 Ryder Hall, Northeastern University

Representation and Perception of Music Structure

Abstract

The way a performer interprets a score––or any representation of music––is based on historical, cultural, and cognitive factors that are specific to a musical style. The combination of both inherent structural features of the music as well as expressive features that result from a performer's interpretation contribute to a listener's experience of the music. These structural and expressive features all combine to create the percept of musical tension. The feeling of rising and falling tension in music is an essential aspect of how a performer interprets a score and how a listener enjoys and experiences a musical performance. Through a discussion of empirical work, this talk will elucidate how this concept of tension is a key aspect of how a musical score is composed, performed, and then perceived by a listener. Cross-modal aspects of tension, primarily in an audiovisual framework, are further explored from the perspective of multimedia experiences of music.

Bio

Morwaread Farbood is Associate Professor and Associate Director of Music Technology in the Department of Music and Performing Arts Professions at New York University. She is also affiliated with the Max Planck/NYU Center for Language, Music, and Emotion (CLaME) and the Music and Audio Research Laboratory (MARL). Her research focuses primarily on understanding the real-time aspects of music listening, in particular how emergent phenomena such as tonality and musical tension are perceived, in addition to developing computer applications for facilitating musical creativity based on cognitive models. She is the co-founder of the Northeast Music Cognition Group (NEMCOG), an organization that brings together music perception researchers in the Northeast Corridor region of the United States, and has served on its Executive Committee since its inception. She also served as the executive organizer of the 2019 Society for Music Perception and Cognition Conference, which was hosted at NYU. She is currently a member of the Editorial Board of the journal Empirical Musicology Review and the Executive Board of the Society for Music Theory; she also served as Associate Editor of the journal Psychomusicology: Music, Mind, and Brain from 2018-2021. Her publications have appeared in a variety of journals including Music Perception, Journal of the Acoustical Society of America, Proceedings of the National Academy of Sciences, Journal of Experimental Psychology: Human Perception and Performance, Frontiers in Psychology, Frontiers in Neuroscience, Attention, Perception, & Psychophysics, Personal and Ubiquitous Computing, and IEEE Computer Graphics and Applications. As a harpsichordist, Farbood won First Prize in the 2005 Prague Spring International Harpsichord Competition and is the recipient of the Pro Musicis International Award.

Earlier in her career, Professor Farbood developed Graphical Score Interface (GSI), a software environment that facilitates music composition by providing users with graphical tools for visualizing, manipulating, and generating high-level musical structures. The core design elements are based on Hyperscore, a software application designed by Farbood to help users with little or no musical training to compose music. A tension model within GSI serves as a way for users to visualize and shape the dynamic flow of their compositions from a large-scale perspective. Color is mapped to motivic material, which can be designated by the user or automatically determined by the system using an algorithm that extracts recurring melodic patterns from both audio and symbolic representations of music. The ultimate goal of GSI is to enable users of all musical backgrounds to create, edit, and analyze musical material through the assistance of an intelligent musical system based on models of music cognition.

KEYNOTE SPEAKER

HOLLY WATKINS

Professor of Musicology, Eastman School of Music

Tuesday, May 16, 2023 – 9:00am; Rm. 429 Ryder Hall, Northeastern University

Conception and Perception, Structure and Form: Thoughts on the Representation of Animal Song

Abstract

Over the past few decades, spectrograms have become a powerful tool for representing and analyzing animal vocalizations. In the case of birdsong, spectrograms have joined a number of techniques historically used to represent the sounds of birds, including translation into linguistic syllables and musical notation. As with any technique of representation, however, spectrograms capture only certain aspects of birdsong as a total phenomenon, affording particular interpretations that privilege the sonic signal over its broader ecological significance. This paper explores current resources for analyzing birdsong and differentiates between structure and form in order to accommodate affective and aesthetic responses to animal voices.

Bio

Holly Watkins received her PhD in musicology from the University of California, Berkeley in 2004, after completing an MA in musicology and a BA in physics at the University of Virginia. She is the author of Musical Vitalities: Ventures in a Biotic Aesthetic of Music (Chicago, 2018; series on New Material Histories of Music) and Metaphors of Depth in German Musical Thought: From E. T. A. Hoffmann to Arnold Schoenberg (Cambridge, 2011; series on New Perspectives in Music History and Criticism). Her articles on Romantic and modernist aesthetics, ecocriticism, and intersections between music and philosophy have appeared in such venues as the Journal of the American Musicological Society, 19th-Century Music, New Literary History, Women and Music, Opera Quarterly, New Centennial Review, and Contemporary Music Review. She has presented numerous papers at the annual meetings of the American Musicological Society as well as at conferences ranging from the yearly conventions of the Modern Language Association and the International Association for the Study of Popular Music to the meetings of the Music Theory Society of New York State and the Look and Listen Festival in New York City.

In 2014-15, Watkins received an ACLS Fellowship to support the writing of Musical Vitalities, and in 2010-11, she held a Harrington Faculty Fellowship at The University of Texas at Austin. In summer 2010, she participated in the Mannes Institute on Musical Aesthetics in Chicago. Her work has also been funded by the nationally competitive Alvin H. Johnson AMS 50 Dissertation Fellowship, the Mabelle McLeod Lewis Memorial Fund, the Townsend Center for the Humanities at UC Berkeley, and Phi Beta Kappa. Her current research and teaching interests center on Romanticism, the aesthetics and philosophy of music, ecocriticism, and posthumanism. In a former life, she enjoyed studying the principles of quantum theory and performing as the lead guitarist in an improvisational grunge-funk trio.

KEYNOTE WORKSHOP

Monday, May 15, 2023 – 12:00pm; Rm. 354 Ryder Hall, Northeastern University

Two Automatic Score-Presentation Systems to Direct and Shape Improvisational Music Practices

Abstract

Tim Perkis, in collaboration with his development partner Gino Robair, will present two automatic score-presentation systems that explore different ways to use computer systems to direct and shape improvisational music practices, notation systems that support ensemble playing in the space linking improvisation and composition. The first, nettet, presents graphical, musical score-material to players in an ensemble. In this system, a conductor chooses from a set of images they have collected beforehand, and at different times during a performance they can send score pages, either to the entire ensemble or to subsets of the ensemble, which appear on the players' individual laptops or tablets. In this version the score pages are simply image files, which can contain any graphic element, including but not limited to fragments of conventional notation. The second, xband, is focused on the presentation of more conventional music notation. A player of an electronic musical instrument (in this case, Perkis) improvises musical phrases which are captured in a memory bank. The conductor (Robair) manages this collection and can apply various transformative functions to the saved phrases, and then decide if and when they may be passed on to a player's tablet display, rendered as conventional musical notation. In addition, the conductor gives visual cues to the players that indicate various styles of engagement with the material; for example, whether to play in unison or solo freely, tempo and feel suggestions, as well as other more particular cues that the ensemble may learn in rehearsal. In this workshop session we invite and encourage conference attendees to participate in our workshop's performing ensemble in order to enhance the workshop experience!

TIM PERKIS

Software Engineer, Researcher and Educator

Bio

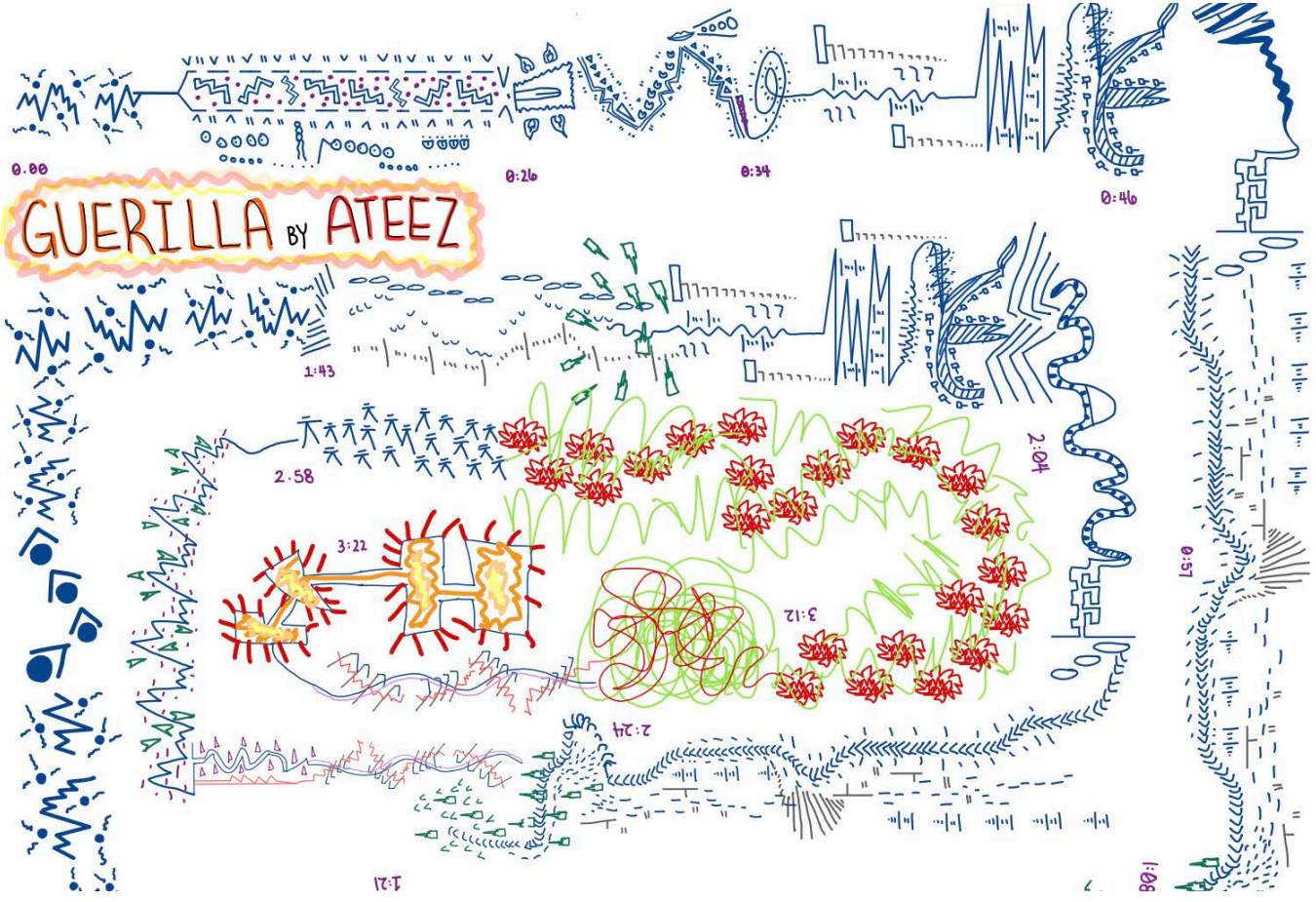
Tim Perkis is a well-known figure in the worlds of improvised and electronic music. Over the course of decades he has played his unique computer-based electronic instruments with hundreds of musicians, and is also a founding member of the pioneering computer network band The HUB. Recordings of his music are available on the Artifact, Tzadik, New World and EMANEM labels, among others. His documentary film Noisy People (2007) and The NoisyPeople Podcast (2015) are accessible at vimeo.com and bandcamp.com. In 2018 The HUB was the recipient of the GigaHertz Prize for Lifetime Achievement in Electronic Music, from ZKM in Karlsruhe Germany.

GINO ROBAIR

Software Engineer, Researcher and Educator

Bio

As a composer and visual artist, Gino Robair explores how non-standard and graphical notations influence interpretive performances across different media—music, dance, video and theatre. He is currently working towards a PhD in Performance Studies at the University of California, Davis, developing performative models for improvised papermaking and letterpress printing. As a writer about music technology, Robair has contributed to Mix, Remix, Guitar Player, and Electronic Musician (EM) magazine, where he was an editor for 10 years. He is the author of two books, including The Ultimate Personal Recording Studio (Thompson; 2006). www.ginorobair.com



Guerilla by Ateez
Image by LanHong Huang

PAPER ABSTRACTS

Session 1: Perception, Cognition, and Creativity I

10:00 am May 15

Jaslyn Robertson

Structuring Censorship in Digital Scores

Digital scores allow for new ways to experiment with agency and perception within composition and performance. My recent works Censoring Experiment and Shadow Aria examine the possibilities for digital scores to incorporate methods of censorship with the aim of highlighting and unpacking the social issue. Despite an assumption that censorship is an issue of the past or limited to non-western countries, recent cases of artistic censorship in Australia and North America have brought attention to the ongoing problem, particularly as it affects marginalised artists and composers. In this paper, I discuss my two pieces that attempt to address, complicate, and subvert the issue of artistic censorship through experimental composition. Digital notation is the medium that allows these pieces to exaggerate real censorship and test how performers react creatively to censored environments. I argue that animated notation and mixed-media environments created through technology give me the ability to replicate and change a real-life social issue within a performance, letting my art not just comment on a political question, but work towards new insights through practice-based research.

10:20 am May 15

Matthias Nowakowski, Aristotelis Hadjakos

Online Survey on Usability and User Experience of Music Notation Editors

Although one can see a certain convergence between the interaction designs of different notation editors, there is no general consensus or standard since new interaction paradigms keep ap-pearing with most major software updates or new products. In this paper, we present the results from an online survey (n = 138) with standardized usability and user experience questionnaires. The users of digital notation editors were asked to fill out the System Usability Score, the Attrak-Diff2 and the Liveness questionnaire. This provides insights into domain specific design problems with the goal to inform the design of future interfaces. Almost all music notation editors show clear deficiencies in overall usability. Furthermore, a detailed examination of the obtained metrics show specific dependencies of individual qualities, which are helpful to conduct further qualitative research.

10:40 am May 15

Psyche Loui

BP Sequencer: A Low-Barrier-to-Entry Assessment Tool for Musical Creativity

This paper introduces a newly designed sequencer of music in the Bohlen-Pierce (BP) scale to assess creative perception and cognition. We begin with a brief overview of scientific studies on musical creativity, leading up to a gap in the field that is unaddressed by traditional studies that compare different forms of musical training and instrument-dependent output for understanding creativity. We then introduce the novel BP sequencer, an experimental interface that affords generating and rating the creativity of novel musical sequences that are uniquely composed in the Bohlen-Pierce scale. We then report three preliminary experiments in which we quantify the number of sequences generated by each individual and isolate the musical-informatic features that were rated as more creative. Participants showed a wide range of creativity in generating novel sequences. Sequences that were rated as more creative were generally longer, had more unique pitches, and had more dif-ferent interval sizes. Furthermore, a preliminary electrophysiological (EEG) study quantifies three distinct candi-date biomarkers for the perception of musical creativity. This novel sequencer of Bohlen-Pierce scale music can provide a useful tool for assessing creative perception and cognition. The code for this tool is freely available, along with video tutorials and documentation.

Session 2: Non-Standard Notation and Alternative Scores I

11:20 am May 15

Ciaran Frame

Notating Experiences: A New System for Visual Documentation in Instrument Design

In the community of Digital Musical Instruments (DMIs), documentation surrounding iterative interactions and the creation of mappings is largely absent from DMI projects beyond the recording of a performance or subsequent evaluation with a performer. This is because the performance or interactive experience with the instrument is often viewed as the end point for a DMI project, and the description of a mapping or open-sourcing of software considered the 'score'. This paper outlines the creation of a visual notation based on unique interactions with the AirSticks, a gestural musical instrument. These notations expand on the concept of descriptive notation, creating a form of retrospective score and record-keeping for instrument designers. By capturing the intimate experiences and musical collaborations that contribute to the iterative design of the instrument, it is concluded the notation system provides an avenue for critical analysis that will aid the further development of DMIs.

11:40 am May 15

Jean-Michaël Celerier, Akané Levy

A Notation System for Distributed Media Art

Music, and media art in general, is often a collaborative process involving at first groups of individuals, and nowadays of computers, working together for the performance of media artworks. Interactive, intermedia scores are scoring systems which enable composers to specify temporal evolutions and variations of such multimedia systems. We will introduce a visual notation and its execution semantics for distribution of the interpretation and execution of such scores over a computer network. For instance, we will show how one can write and execute a score which specifies: part A plays on a first group of computers, followed by part B on a second group of computers, while a parallel part C containing a synchronized video effect is being played on a separate machine with dedicated video hardware. Based on the pre-existing scoring environment ossia score, we will cover how the extensions interact with the existing semantics, and present a set of small distributed scores which enables varied behaviours to be defined by the composer from our proposed set of nine temporal and three dataflow primitives for distribution.

Session 3: Non-Standard Notation and Alternative Scores II

10:00 am May 16

Nicola Privato, Thor Magnusson, Einar Torfi Einarsson

The Magnetic Score: Somatosensory Inscriptions and Relational Design in The Instrument-Score

With the changes occurring in the dialectics between the composer and the interpreter during the second half of the twentieth century, the traditional concept of the musical score has undergone an ontological change. As composers began exploring unconventional notational practices and offering to the interpreter a higher autonomy in relating with the musical material, the locus of the musical information has become less defined, at times merging with that of the instrument. In this paper we explore the dual nature of notation both as score and as instrument from the point of view of non-visual methods of representation. We do this by presenting the Magnetic Score, a system for the inscription and generation of sound that relies on permanent magnetic fields. In magnetic scores, the relational design of the inscriptions and the interdependence of the symbolic and somatosensory layers offer original insights on the role and situatedness of the musical score in contemporary practices, as the performative gestures emerge out of the interpreter's embodied interaction with the magnetic fields.

10:20 am May 16

David Kim-Boyle

The Reactive Score

Scores designed to be displayed on screens provide the opportunity for composers to dynamically update information and musical instructions presented to performers during the moment of performance. Such scores may be responsive to the agency of performers or audience members, providing new forms of structural organization or ways in which denoted musical material can be transformed. This paper explores the creative

possibilities of such reactive scores and situates them within a historical tradition of malleable notation. Two works by the author are discussed in which real-time features of the musical performance drive the notational transformations of the performance score.

10:40 am May 16
Jack Armitage, Thor Magnusson
Agential Scores: Artificial Life for Emergent, Self-Organising and Entangled Music Notation

Dynamic scores have become a popular intervention into musical performance, with novelty both for the performer and the audience. In this paper we describe agential scores and the implications of their emergent, self-organising and entanglement affordances for musical performance ecologies. We do so through practice-based research, introducing Tolvera, an ALife software library for agential scores. We offer a typology of interaction scenarios for agential scores, and explore a subset of these, presenting the outcomes of early artistic encounters with Tolvera between two improvising guitarists. Reflecting on our encounters, we highlight unique issues that arise out of engaging with scores as real-time agents, proposing that agential scores encourage fluidity of form in notation, which in turn provokes performers to identify with, mirror and attune to them. Though scores have always had agency, we find their rapidly increasing agency poses new questions, and new possibilities for the intra-actions between the human and non-human agents of musical ecologies.

Session 4: Score Processing and Generation I

11:20 am May 16
Gen Hori
Enumerating Left Hand Forms for Guitar Tablatures Using Non-Decreasing Finger Numbers and Separators

We point out that fingering decisions of string instruments and other instruments differ in that the former involves string assignments as well as finger assignments while the latter is simply a matter of assigning fingers to notes. The present study introduces a three-level model for fingering decision of string instruments to describe the structure of the problem and present problem settings of fingering decision based on the model. as well as a new idea for enumeration of left hand forms for guitar tablatures using nondecreasing finger numbers and separators.

11:20 am May 16
Claudio Panariello, Emma Frid
Omclass: A Supercollider Class to Generate Music Scores in Openmusic

This paper introduces OMClass, a class built for the software SuperCollider in order to create a bridge to OpenMusic and thus facilitate the creation of musical scores from SuperCollider patches. OMClass is primarily intended to be used as a tool for SuperCollider users who make use of assisted composition techniques and want the output of such processes to be captured through automatic notation transcription. This paper first presents an overview of existing transcription tools for SuperCollider, followed by a detailed description of OMClass and its implementation, as well as examples of how it can be used in practice. Finally, a case study in which the transcription tool was used as an assistive composition tool to generate the score of a sonification – which later was turned into a piano piece – is discussed.

11:40 am May 16
Ilana Shapiro
MusAssist: A Domain Specific Language for Music Notation

MusAssist is an external, declarative, domain specific language for music notation that bridges the abstraction gap between music theory and composition. Users can describe uniquely high-level templates for chords and arpeggios (all triads and seventh chords), scales (diatonic, chromatic and whole tone), the five primary cadences, and the four primary harmonic sequences with desired length. Distinctively, MusAssist matches the level of abstraction of a template to the theoretical musical structure it describes (e.g. users can specify a harmonic sequence without needing to manually expand it to the chords and notes it comprises). Thus, users can write out specifications precisely at the conceptual levels of the musical structures they would organically conceive when composing by hand. In MusAssist, users can also change key signatures, start a new measure,

and describe fundamental musical objects such as notes, rests, and customized chords. The Has-kell-based MusAssist compiler expands high-level templates (thus lowering the level of abstrac-tion to individual notes) and translates the program to MusicXML, a language accepted by most major music notation software, for further manual editing and playback.

Session 5: New Approaches to Visualizing Harmonic Content

12:40 pm May 16

Hiroyuki Yamamoto, Satoshi Tojo

Beyond The Basic-Space of Tonal Pitch Space: Distance in Chords and Their Interpretation

Tonal Pitch Space (TPS defines a numerical distance between two chord interpretations. Although it is based on musical knowledge and theory, the structure and values are not defined in an objective manner. Preceding works have addressed this problem, and TPS has been revised and optimized the definitions of distance, in the interpretation of chord paths, given chord names. In these former works, which notions that appear in TPS work contribute to the distance has not been clarified; among which the contribution of the basic-space is rather ambiguous. In this study, we modify the task to incorporate pitch class (PC) information so that we can not only train other distance models that concern PC but also compare their performance with that of basic-space. We show that the data-oriented approach improves the accuracy from the original basic-space, especially when we add a distinction of major and minor keys.

1:00 pm May 16

Manuel Gaulhiac, Xiao Xiao, Jean-Marc Chouvel

Harmonic Map – Interactive Visualization Of 3-Note Chord Spaces Based on Spectral Structures

We present Harmonic Maps, a visualization of three-note chord spaces and an interactive application that allows users to explore in real-time the connection between the visualization and its mapped sounds. While typical harmonic analysis is based only on notes or on an audio signal, our analysis takes a hybrid approach by quantifying different types of interactions between the spectra of notes. These quantifications, which we call Harmonic Descriptors, are derived from acoustic or perceptual models. Three such descriptors are defined and mapped: concordance, third order concordance and roughness. Harmonic analysis based on spectral structures opens new possibilities beyond traditional note-only or signal-only approaches. They can be applied to a continuum of frequencies, independent of the tuning system, as well as historical and stylistic constraints. Harmonic Maps based on spectral structures can be especially relevant to study the relationship between timbre and harmony. Our interactive exploration of harmonic spaces can have applications for analytical, compositional and educational purposes.

Session 6: Score Processing and Generation II

9:00 am May 17

Markus Lepper, Baltasar Trancón Y Widemann

Beam It Up! — A Classification Grid for Historic and Contemporary Practices Of Beaming By Mathematical Re-Modelling

In conventional Common Western Notation (CWN there are different notations styles for flags and beams, evolved historically. We present a classification based on an algorithm which sets beams according to positions in a musical metric space. This algorithm contributes to more clarity also for the human discussion of the historic phenomena thanks to its stratified architecture: (a assignment of canonical beaming to nodes of the metric tree, then (b) data transformations coming from pauses, dotted notations, etc., (c) breaking of beams according to further parameters like motifs, playing techniques, etc., and finally (d transformations according to the needs of graphic appearance. For phases (a) and (b) an exact algorithm is presented; for (c) and (d) a semi-formal classification grid.

9:20 am May 17

Georg Hajdu, Xiao Fu

Sonification, Musification and Dramafication of Astronomical Data in The Multimedia Production “A Space Journey”

In this paper, we will discuss, in the context of a recent multimedia production at the Hamburg University of Music and Drama, the notions and concepts surrounding the musical treatment of astronomical data. We will make the distinction between the three categories of sonification, musification and dramafication as being a continuum in terms of how accurately the underlying data are represented, and give examples for their application in the multimedia production.

9:40 am May 17

Esa Onttonen

Collaborative Live Composition with Frankie

This paper describes a web application being developed for the purpose of collaborative live composition. In this concept, musical information such as pitch sets, chord progressions and textual parameters can be created and communicated in real-time by all members of the group. Primarily designed for tablets, the application aims for high usability values and has been tested and developed with professional jazz musicians. This paper presents the background for the concept of collaborative live composition, along with the main features, design principles and the development process of the application. Finally, the paper describes a concert performance and reflects on the affordances, opportunities, and challenges of the concept.

Session 7: Interpreting Creative Spaces

10:20 am May 17

Anna Shvets, Samer Darkazanli

Non-Linear Volumetric Music Composition in A VR Context: Project “Omega”

Technological progress in development of XR creative spaces influences our perception of the piece of art. The use of gestural control enables interaction with the spatially distributed elements and creates conditions, where the user participates in a co-creation of a virtual experience. When applied to music art, the spatialization along with interactivity promotes non-linearity of musical structure, resulting in a new instance of music, out of the initial set of possibilities. In this article, we present a concept of a volumetric music composition, which maps music form to a 3D VR space, with a possibility of a variance at each mapping point. We implement a concept in a volumetric VR music composition “Omega”, which allows the user to choose between two alternative paths at each stage of the form development. The user’s action affects not only the changes in music, but triggers the colorization of the surrounding space, color being the reflection of the chosen musical path. Along with the music form spatialization and surroundings colorization, we integrate the paths of gestural movement, which user may choose to follow, adding visual aesthetics to the act of music creation. The synesthetic nature of the composition tightly binds music, color, 3D space and movement into one act of expression in a cocreation of a musical form. The article describes the context, philosophy and details of realisation of the concept’s practical implementation.

10:40 am May 17

Jonathan Bell

Maps As Scores: “Timbre Space” Representations in Corpus-Based Concatenative Synthesis

The present study investigates ways in which the “timbre space” metaphor may be used in creative ways for instrumental composition. Numerous tools for concatenative sound synthesis share today the ability to represent in an ndimensional space large quantities of sound, thus displaying on a map data which originally unfolded in time. If the potential of such systems for creating interactive instruments is an evidence, their affordance as musical scores needs further assessment, for control over time becomes unknown territory. When porting to VR such representation of sonic data, the score becomes a 3-dimensional map (or world) in which the user typically navigates freely. Experimentation through composition, instrument design and improvisation have shown a potential of simulation of plausibly automatised acoustical instrument, using machine learning techniques to model virtual instruments out of relatively small quantities of data (e.g. 20 minutes of audio to model a clarinet). The method offers promising avenues for the exploration of instrumental fragments clustered by timbre, register, dynamic, instrumental techniques. Whether or not such maps identify as musical scores, they contribute to addressing a problem formulated by Lev Manovitch: “how to merge database and narrative into a new form”.

11:00 am May 17

Iran Sanadzadeh, Cat Hope

Interpreting notated works using the Terpsichora Pressure-Sensitive Floors

The Terpsichora Pressure-Sensitive Floors are a new digital musical instrument which uses whole-body motion to control electronic music. The instrument continues the development of early models for pioneering dancer

Philippa Cullen (1972), expanding its use as an expressive and versatile musical instrument. Two works by Australian composer Cat Hope were adapted for performance with this new instrument. Delay Taints (2018), for dancer, cellist and subtone, is an animated graphic score that provided an opportunity to freely assign sonic choices to the instrument, and read notated body movement to control those choices. This adaptation contrasts with that of Majority of One (2016), for four sustaining instruments and room feedback, where two of the notated parts were interpreted on the instrument. Methods to produce continuously controlled sound using limited movements of the body were developed to replace the instruments featured in the original performances of this work. This work explores the difference in the embodied connection of gesture to sound between acoustic and electronic instruments and explores the idiosyncrasies in the navigation of time elements in music for the Floors. In addition, methods of performing with the Floors produces a new form of communicating electronic performance to audiences using full body gesture. Interpreting these two compositions by Hope using the Terpsichora Pressure-Sensitive Floors contributes new strategies for adapting animated scores for electronics using direct body movement.

Session 8: Perception, Cognition, and Creativity II

11:40 am May 17

Craig Vear, Solomiya Moroz

The Digital Score: a review of research spanning 2022-23

This paper presents a brief overview of DigiScore research activities in the first 18 months of the project. Digiscore is an ERC-funded project studying the technological transformation of the music score through technology. The paper is basically split into three sections each dealing with a major research theme. The first section presents design considerations for digital scores that have emerged out of the case studies, including findings from TENOR 2022, Marseilles, and others projects that incorporated technologies such as Unity gaming engines, machine learning, robotics and EEG readers. The second section focuses on two case studies looking at the impact of this research upon inclusive and accessible music-making through digital scores. Specifically Digital Syzygies – a digital score as a shared creative platform for d/Deaf and autistic musicians, and Jess+ – an AI/Robot Digital Score that operates as a creative interface between an ensemble of musicians of mixed abilities. The final section reports on the provisional insights from a digital musicianship investigation that seeks new knowledge in the skills, perceptions, contexts, cultures, awareness and knowledges of digital musicians engaging with digital scores.

12:00 pm May 17

Markus Lepper, Baltasar Trancón Y Widemann

Beam It Up! — A Classification Grid for Historic and Contemporary Practices Of Beaming By Mathematical Re-Modelling

Music notation is typically viewed to be an interface for the transfer of musical information, with a performer's individual interpretation of a score determining the aural outcome. Performers rely on learned symbols and context clues to interpret a score, supplemented by semantic information inferred by the style and font of the score. When scores contain novel graphic elements that have no standardised framework for interpretation, such as colour and shape, the semantic information contained in the visual presentation of the graphics becomes integral in influencing a player's unique interpretation. Though marketing and graphic design literature demonstrate the clear importance of visual design in mediating the relationship between viewer and media, examination of this phenomena remains remarkably absent from score analysis. In this paper, I use colour as the primary lens through which to explore the role of visual design in mediating a performer's response to a score. I present three original and visually distinct compositions as case studies, each uniquely demonstrating the role of colour and peripheral extra-musical content as mediators of interpretation. I centre verbal and written responses from performers to explore how the interaction of and with these visual characteristics shapes performer responses to the score and resulting music.

12:20 pm May 17

Kenneth Fields

Sheng Yijing: Book of Sound Changes

This project maps the Yijing (YJ) symbolic space to its spectromorphological (SM) counterpart, with the goal of further substantiating the ontological terrain and primary categories of sonic states and transformations. Spectromorphology emerged out of an empirical/phenomenological method as bound to sonic material, while later being shaped by categorical, symbolic, and historical considerations. The Yijing arose from a much more historical and abstract description of the states and processes of change itself, independent of material or contextual application – determining its object or context at the time of reading or consultation. In this paper, we touch on a very few of the general concepts that orientate the study.

WORKSHOP ABSTRACTS

Monday, May 15, 2023 – 2:40 pm

Longy; Zabriskie House, Alternative Performance Space

Hybridity in Composing for and Performing with Microtonal Ensembles

Georg Hajdu

This workshop gives an introduction to how to prepare materials for microtonal performance, particularly for the Bohlen-Pierce scale. Microtonal ensembles often consist of a mix of instruments with different playing styles necessitating a hybrid approach to music notation. We are distinguishing between logical, instrumental and habitual notation styles which are usually mixed in a score. The software MaxScore offers several tools facilitating the process of creating hybrid scores via bi-directional mapping of semantic data to their graphical representation. A plugin structure allows users to add maps on the fly and thus increase the repertoire of new staff styles. In this workshop, a scenario of a recent performance will be presented which consisted of 11 instruments and 8 singers performing in the Bohlen-Pierce scale, and it will be shown how to add a plugin for a new staff style. Participants are required to have a laptop with Max and MaxScore installed.

Monday, May 15, 2023 – 2:40 pm

Longy; Rey-Waldstein Building, Rm. N-1

Ossia score 3 workshop

Jean-Michaël Celerier

This workshop will give an overview and teach the participants how to use the free and open-source software ossia score in its version 3. Dubbed “interactive sequencer for the intermedia arts”, it is a system which combines both the non-linear time-lines and the data-flow paradigms to allow artists to author evolving multimedia artworks, musical pieces, museum installations, etc. Version 3 introduces support for a real-time GPU-enabled video pipeline seamlessly integrated with the rest of the system, live-coding for C++ (and many other languages), support for tempo, musical metrics, hierarchical polyrhythms, distributed and collaborative edition and execution and a generalized looping primitive for its interactive time-line among other features. For the best experience, participants should have some pre-existing knowledge in how to use either DAWs (Ableton Live, Cubase), patching systems (Max/MSP, PureData, TouchDesigner…) or audio coding languages (Faust, ChucK, SuperCollider), and bring their own laptop to the workshop.

WORKSHOP ABSTRACTS

Monday, May 15, 2023 – 4:00 pm

Longy; Zabriskie House, Alternative Performance Space

The Animated Notation Workshop 2.0

Ryan Smith

The author of the Animated Notation Workshop has been researching and creating animated notational approaches for over a decade and this workshop will focus on recent work in the production of real-time notation in what might be considered a more-improvisatory way. To this end, the Animated Notation Workshop will delve into the general functionalities and purposes of Animated Notation using a browser-based score generator designed by the author. During the workshop, attendees will have an opportunity to explore the compositional, improvisational, performative and pedagogical aspects of the creation of real-time, necessarily-dynamic notation. A collection of small percussion instruments will be provided by the author but attendees are also encouraged to bring their own instruments, although this is not at all necessary.

Longy; Rey-Waldstein Building, Rm. N-1

New Notation and Technology: The Revolution in Music Education

Shane McKenna

Discover how an online platform using non-traditional notation has revolutionised classroom music teaching in Ireland. Experience a system of music education designed to democratise listening, performing and composing for teachers and young students. The workshop will be led by Shane Mc Kenna who has developed this system over the lats 15 years through performances, workshops, field research and development. The workshop will explore everything from graphic notation and animated graphic notation to realtime interactive performance systems. Each activity has been specifically designed to be accessible, engaging and creative for both non-specialist and experienced music teachers and all students regardless of prior musical experience. Participants will be guided through musical activities using a selection of simple percussion instruments or whatever instruments they wish to bring along.

Tusday May 16, 2023 – 2:30pm

NEC; Pierce Hall; SB 118

Improvisation Workshop

Lisa Mezzacappa

San Francisco Bay Area bassist and composer Lisa Mezzacappa leads an interactive workshop in structured improvisation using graphic notation, images, and text called up via a simple Max patch designed by composer and technologist John Mallia. All are welcome to participate – come prepared to play.

DEMO ABSTRACTS

Tuesday May 16, 2023 – 2:30pm

NEC; Student Life and Performance Center, Prevost 315

Buddha Orchestra – Music Found in Images

Viktor Khachtchanski, J. Byron Wise

What captivates us to create? Insatiable possibilities in the pursuit of a good idea? Buddha Orchestra is an end-less wellspring for the gestation of thought sonic poetry. This Open Source software for creatives is not a gen-erative tool in as much as a reflection of the user's esthetic. Perhaps you draw, doodle, or paint but have never considered sound craft or sonic collage. Maybe as a creative, you compose but are looking for another tool to exact your creative intention. Buddha Orchestra creates music from images. It does so in a way that is quick and easy to understand. We hope to inspire your creative play with this unique tool for composition and discovery.

Tuesday May 16, 2023 – 3:00pm

NEC; Student Life and Performance Center, Prevost 315

Jess+ an AI/Robot Digital Score that operates as a creative interface between an ensemble of musicians of mixed abilities

Craig Vear

Jess+ is an AI/Robot Digital Score that operates as a creative interface between an ensemble of musicians of mixed abilities. The AI and robotic technologies are used to extend the creativity of disabled musicians. The creative AI and the disabled musician work as an extended system, with each feeding the other. This demo will explain the technical design of the AI and robot, and outline the findings from an ongoing case study with Jess +. There is also an opportunity for delegates to play with this digital score.

DEMO ABSTRACTS

Tuesday May 16, 2023 – 3:30pm

NEC; Student Life and Performance Center, Prevost 315

MusAssist: A Domain Specific Language for Music Notation

Ilana Shapiro

MusAssist is an external, declarative, domain specific language for music notation that bridges the abstraction gap between music theory and composition. Users can describe uniquely high-level templates for chords and arpeggios (all triads and seventh chords), scales (diatonic, chromatic and whole tone), the five primary cadences, and the four primary harmonic sequences with desired length. Distinctively, MusAssist matches the level of abstraction of a template to the theoretical musical structure it describes (e.g. users can specify a harmonic sequence without needing to manually expand it to the chords and notes it comprises). Thus, users can write out specifications precisely at the conceptual levels of the musical structures they would organically conceive when composing by hand. In MusAssist, users can also change key signatures, start a new measure, and describe fundamental musical objects such as notes, rests, and customized chords. The Haskell-based MusAssist compiler expands high-level templates (thus lowering the level of abstraction to individual notes) and translates the program to MusicXML, a language accepted by most major music notation software, for further manual editing and playback.

NEC; Pierce Hall; SB 118

The Magnetic Score: Somatosensory Inscriptions and Relational Design in the Instrument-Score

Nicola Privato, Thor Magnusson, Einar Torfi Einarsson

With the changes occurring in the dialectics between the composer and the interpreter during the second half of the twentieth century, the traditional concept of the musical score has undergone an ontological change. As composers began exploring unconventional notational practices and offering to the interpreter a higher autonomy in relating with the musical material, the locus of the musical information has become less defined, at times merging with that of the instrument. In this paper we explore the dual nature of notation both as score and as instrument from the point of view of non-visual methods of representation. We do this by presenting the Magnetic Score, a system for the inscription and generation of sound that relies on permanent magnetic fields. In magnetic scores, the relational design of the inscriptions and the interdependence of the symbolic and somatosensory layers offer original insights on the role and situatedness of the musical score in contemporary practices, as the performative gestures emerge out of the interpreter's embodied interaction with the magnetic fields.

DEMO ABSTRACTS

Tuesday May 16, 2023 – 4:00pm

NEC; Student Life and Performance Center, Prevost 315

Creating Common Practice Notation in Symbolist

James Tsz-Him Cheung

This demo session explores the use of Symbolist, a multimedia notation program, for creating common practice music notation. Our project aims to investigate the feasibility of using Symbolist's user-customizable symbols, which are mapped from semantic data, to create visually appealing common practice music scores according to the SMuFL protocol. During the demo, we will present our findings and demonstrate how Symbolist's unique approach to notation can streamline the notation process and enhance the quality and accuracy of music scores. We will also discuss the potential for integrating this approach into the score display of MaxScore, and the benefits of doing so, including improved stability, render quality, and speed. Our demo will showcase the versatility of the symbols defined using Symbolist's API, such as the ability to place clefs on any line and adjust the placement of accidentals in key signatures, as well as the support for microtonal notations.

NEC; Pierce Hall; SB 118

Agential Scores: Artificial Life for Emergent, Self-Organising and Entangled Music Notation

Jack Armitage, Thor Magnusson

Dynamic scores have become a popular intervention into musical performance, with novelty both for the performer and the audience. In this paper we describe agential scores and the implications of their emergent, self-organising and entanglement affordances for musical performance ecologies. We do so through practice-based research, introducing Tolvera, an ALife software library for agential scores. We offer a typology of interaction scenarios for agential scores, and explore a subset of these, presenting the outcomes of early artistic encounters with Tolvera between two improvising guitarists. Reflecting on our encounters, we highlight unique issues that arise out of engaging with scores as real-time agents, proposing that agential scores encourage fluidity of form in notation, which in turn provokes performers to identify with, mirror and attune to them. Though scores have always had agency, we find their rapidly increasing agency poses new questions, and new possibilities for the intra-actions between the human and non-human agents of musical ecologies.

DEMO ABSTRACTS

Tuesday May 16, 2023 – 4:30pm

NEC; Student Life and Performance Center, Prevost 315

Interactive Digital Transcription Platform for Oral Melodic Tra-

Dard Neuman, Jonathan Myers

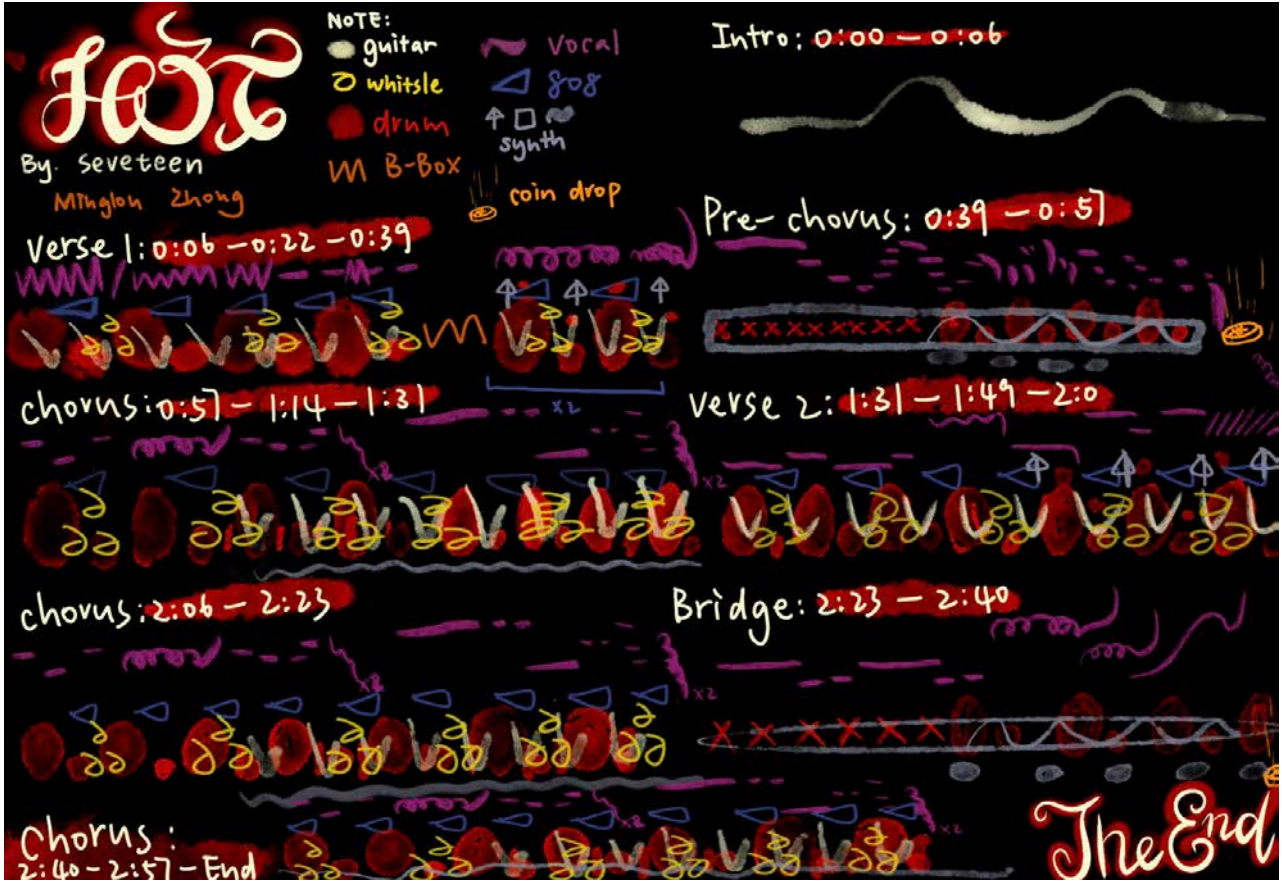
The “Interactive Digital Transcription Platform” (IDTP) is a new web-based application that allows for the accurate transcription, archiving, sharing, and quantitative analysis of oral melodic and improvisational traditions. This demonstration will present how the IDTP can open up fundamentally new areas in music theoretical and empirical research as well as provide new pedagogical resources. These new affordances are possible due to a rethinking of a foundational music-theoretical tenet: namely, that the fixed-pitch note in a twelve tone equal-tempered scale is the basic unit of structure for music making, transcription, notation, and analysis. By contrast, the IDTP is organized around a relationally dynamic tuning system and a succession of “trajectories,” formally specified archetypal paths from one pitch to another. This workshop will demonstrate how to use the IDTP’s transcription editor and analysis suite in the context of Hindustani music recordings and corresponding datasets and data visualization.

NEC; Pierce Hall; SB 118

Neoscore – Notation without bars

Craig Vear

Neoscore is a Python programming library for creating scores without limits. While other notation software assumes scores follow a narrow set of rules, neoscore treats scores as shapes and text with as few assumptions as possible. In neoscore, staves and noteheads are just one way of writing. This introductory session will take the participants through the entry stages of building a score in neoscore. Through this it will introduce some of the extended features and API in order to develop their own work at their own pace. Ideally some knowledge of modern programming language is helpful, but participants without this can buddy with someone who has.



Hot by Seventeen
Image by Minglou Zhong

CONCERT #1

Monday May 15, 2023, 5:00 pm
Longy School of Music of bard College
Edward edward M. Pickman Concert Hall

Concert Program

Elegy (Ready, Set, Rapture) — Rob Hamilton

Rob Hamilton: Coretet, a virtual reality musical instrument

Abstracciones de Jangueo En La Finca de Julio — Roy Guzman

LOADBANG

Andy Kozar, trumpet(s); William Lang, trombone;
Tyler Bouque, baritone voice; Adrian Sandi, bass clarinet

Eastern Praxis — Cecilia Suhr

Cecilia Suhr: cello, violin, singing bowl, bamboo flute, and electronics

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GuitaRPG [NeoScore competition winner] — Xavier Davenport

Xavier Davenport, guitar

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yeah, I see. huh? uh-huh, yup. — Motoki Ohkubo

LOADBANG

Circum (after James Joyce) — Sebastian Adams

LOADBANG

CONCERT #1

Monday May 15, 2023, 5:00 pm
Longy School of Music of bard College
Edward edward M. Pickman Concert Hall

Program Notes / Bios

Elegy (Ready, Set, Rapture)

Elegy (Ready, Set, Rapture) is the second work composed for Coretet, a virtual reality musical instrument modeled after traditional bowed stringed instruments including the violin, viola, cello and double bass. Premiered on October 3, 2019 at the Transitions Festival at Stanford University's Center for Computer Research in Music and Acoustics (CCRMA), Elegy (Ready, Set, Rapture) is a solo multi-channel performance that combines the dynamic presentation of a pre-composed musical chord structure displayed on the neck of the instrument in real-time with improvisation. Coretet is built using the Unreal Engine and is performed using the Oculus Rift head-mounted display and Oculus Touch controllers. All audio in Coretet is procedurally generated, using a physical model of a bowed string from the Synthesis Toolkit (STK), running within Pure Data.

Rob Hamilton

Composer and researcher Rob Hamilton explores the converging spaces between sound, music and interaction. His creative practice includes mixed and virtual-reality performance works built within fully rendered networked game environments, procedural music engines and mobile musical ecosystems. His research focuses on the cognitive implications of sonified musical gesture and motion and the role of perceived space in the creation and enjoyment of sound and music. Dr. Hamilton received his Ph.D. from Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) and currently serves as Associate Professor of Music and Media in the Department of Arts at Rensselaer Polytechnic Institute in Troy, NY.

Abstracciones de Jangueo En La Finca de Julio

This work is a piece written with the technique of abstracting soundscores that are composed or recorded for musical interpretation. Although soundscores have many options in the compositional material used as editing sound material for specific moments and the creation of soundscores for each individual, this piece follows a series of pieces called Abstracciones de Puerto Rico for String Quartet where field recordings of places in Puerto Rico are used for musical interpretation. This piece is a field recording superimposed on top of other segments of the same field recording that catches the sounds of a hangout in the country side of Puerto Rico in the area of Utuado in a farm of Julio, a friend of mine. I intentionally brought Puerto Rican musical instruments, guitar and flutes in order to make them sound freely in the hang.

Roy Guzmán

Roy Fernando Guzmán Rodríguez (born June 28, 1987) is an experimental, contemporary, and algorithmic instrumental and electronic music composer, improviser, and poet born in San Juan, Puerto Rico. His music is primarily exploratory and uses algorithmic procedures to create musical structures. The theme of chaos theory, the abstraction of sound scores in instrumental music, Música A Lo Pobre (Poor Music), non-duality, multipolarity and axiomatic music are usually the main axes of his work.

Eastern Praxis

Eastern Praxis is an interactive live graphic score represented in real-time through symbols, patterns, and free-line notations. The graphic notations are inspired by Korean traditional clothing (national costume) called "Hanbok"'s color and design pattern. The composer will improvise live on the four instruments, cello, a traditional Korean bamboo flute called "Danso," a Tibetan Singing bowl, and violin while imagining the sound of the East and West. Western instruments such as the cello and violin are played with an Eastern influence, channeling the angst-ridden soul of the East while interweaving with the romantic Western musical style. The electro-acoustic performance of live instruments creates myriad sound constellations at the intersection between East and West, modern and ancient. All live instruments are accompanied by fixed media electronics and live interactive processing. *The audio-visual interaction programming received partial technical support from Hans Tammen and Martin Ritter.

Cecilia Suhr

Cecilia Suhr is an intermedia artist and researcher, multi-instrumentalist (violin/cello/voice/piano/bamboo flute), multimedia composer, interaction designer, painter, author, and improviser. She has won multiple awards in the field of visual art, music, interactive media, and academic research, including the MacArthur Foundation, Digital Media and Learning Research Grant Award (2012), the Pauline Oliveros Award from the IAWM (2022), Silver Medal Award from the International Cambridge Music Competition (2023), Bronze Medal Winner from the Global Music Awards (2022), Best of Competition Winner in Interactive Media and Emerging Technologies from the BEA, Festival of Media Arts Competition (2023), Saint Michael Achievement Medal from International Juried Fine Arts Competition, (2013), etc. Her creative work has been featured nationally and internationally at the NYCEMF, ICMC, SEAMUS, EMM, SCI, International Multimedia Arts Festival, New Music Gathering, Splice Festival, Hot Air Music Festival, Moxonic Festival, Beast Feast, Klingt Gut, Ammerman Center Biennial Symposium, Performing Media Arts Festival, Festival of Contemporary Art Music, Oh My Ear Festival, among many others. She is the author of "Social Media and Music: The Digital Field of Cultural Production" (2012, Peter Lang Press) and "Evaluation and Credentialing in Digital Music Communities" (MIT Press, 2014). She is currently an Associate Professor of Humanities and Creative Arts at Miami University Regionals.

GuitaRPG [NeoScore competition winner]

GuitaRPG is an interactive 2-dimensional score through which the performer may freely navigate. Taking inspiration from Role Playing Games (RPGs), the performer may move through regions of the score at their own pace, each region featuring its own distinct soundscape. Upon encountering a new region, the performer will be presented with a new sound or technique to explore on their instrument, accumulating sounds all the way until the climax at the end of the piece. The more times a performer encounters a particular technique, the more they 'level-up' and unlock more variations of that technique. This piece was commissioned by Craig Vear and the Digiscore research project, and created using the neoscore python library, developed principally by Andrew Yoon.

Xavier Davenport

Xavier Davenport (b. 1995) writes music that is meticulously structured, technologically experimental, humorous, theatrical, often improvisatory, and sometimes entertaining. His compositional interests include incorporating mathematics and physics in compositional procedures, animated and interactive digital scoring, ambisonic audio, and applications of quantum computers in composition. He is the recipient of the Sara Krieg Music Scholarship and Huebner Scholarship, and has worked with several ensembles including the Texas A&M University at Kingsville Saxophone Ensemble, the Vista Trio, Rage Thormbones, Ensemble Dal Niente, the New Hong Kong Philharmonia, the Pyrenean String Quartet, and Ensemble 20+. Davenport holds degrees from Wittenberg University (B. S. Physics, B. A. Music, B. A. Chinese Language & Culture), National Chiao-Tung University (M. S. Electrophysics), and DePaul University (M. M. Composition with distinction). Davenport is currently pursuing a DMA in music composition at the University of Illinois at Urbana-Champaign where he is a graduate assistant working in the Experimental Music Studios under Dr. Eli Fieldsteel.

yeah, I see. huh? uh-huh, yup.

Balls are bouncing by physical calculation around in the image projected on the screen. The computer automatically composes music when the ball hits the wall at both ends, and sends the performance instructions to each player's tablet terminal. The performers follow the instructions they receive in real time. From the audience's point of view, it appears as if the performers are playing while watching the balls collide. Actually, however, the relationship between the collision of the balls and the performance is not directly connected, but rather there are several processes in between that are designed to make the timing in the end. The rules are simple, with automatic composition sometimes randomly changing the chords used. The music seems to have no development and composition. It's like a time Sitting on the shore of a lake with friend, looking at the shimmering surface of the water and having an unstructured conversation. This is a protected time where no one can disturb them.

Motoki Ohkubo

Motoki Ohkubo (b.1988) is a Japanese composer, an audio engineer and a part-time teacher of Nagoya University of the Arts, Aichi Shukutoku University and Soai University. He uses technologies, such as audio engineering, programming, video into musical composition. His works extend a musical form with wide range expression, electroacoustic, algorithmic composition, chamber music, dance music, installation, video. His

works won ACSM116 award at Contemporary Computer Music Concert 2010 and Sony special award at Wired Creative Hack Award 2019. and be selected at Musica Viva Festival 2010/2013, International Symposium on Electric Arts (ISEA) 2015, Muestra Internacional de Música Electroacústica (MUSLAB) 2017, ACOUSMATIC FOR THE PEOPLE III RAW, and Sound Performance Platform 2019.

Circum (after James Joyce)

Circum is an experiment in creating a silent, animated score: the visual element is supposed to be visible both to the performers and the audience and it acts as the entire "text" for the performers. For the musicians, the video inspires them to create sound, generating a feedback loop where their actions are affected both by the video and the sonic choices they have already made. For the audience, however, sound and sight unfold simultaneously. Circum is also my first attempt as an Irish artist to get into the world of James Joyce – probably the most important Irish artist? My transitions, which sit between pieces focused on specific episodes of Ulysses, transverse the entire text (backwards) in several ways, treating Bloomsday like Groundhog Day. The animated score is made of text transformed algorithmically into music notation, both displayed using particle systems.

Sebastian Adams

Sebastian Adams (b. 1991) is an Irish composer and performer. As an undergraduate, he founded Kirkos, an experimental music ensemble which runs Dublin's only DIY music venues as well as creating major projects of its own. Current projects include Stolen Music (a concert and web-based exploration into the chilling effects of intellectual property law: stolenmusic.org) and Chat Music (real-time conversion of Twitch chat streams into music, in collaboration with Carl Ludwig Hübsch). As a viola player Sebastian is active in improvisation, new music and early music. He recently completed the IRCAM Cursus, and previously studied in Dublin and Vienna.

CONCERT #2

Monday, May 15, 2023, 8:00 pm
Longy School of Music of Bard College
Edward M. Pickman Concert Hall

Concert Program

Shadow Aria — Jaslyn Robertson

LOADBANG
Andy Kozar, trumpet(s); William Lang, trombone;
Tyler Bouque, baritone voice; Adrian Sandi, bass clarinet

Survival Kit — Eugene Markin

Eugene Markin, live coding

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502 Days of Self — Iran Sanadzadeh

Cat Hope, flutes; Jaslyn Robertson, electronics; Iran Sanadzadeh, electronics

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Points of Convergence — Shai Cohen

Lisa Mezzacappa, acoustic bass

Their Lives Are Stripped of Meaning — Cat Hope

LOADBANG

Animated Notation Workshop — Ryan Ross Smith

Lisa Mezzacappa, acoustic bass; LOADBANG

CONCERT #2

Monday May 15, 2023, 5:00 pm
Longy School of Music of bard College
Edward M. Pickman Concert Hall

Program Notes / Bios

Shadow Aria

Shadow Aria is a piece about silenced voices, and an experiment with lighting and multichannel audio as digital scores. A few years ago, I interviewed Helen Gifford, one of the most interesting Australian composers of the last century. She told me about orchestral pieces and operas she had written over the years that were never performed because of gendered discrimination and the restrictions of her illness. Since then, I have wondered how many pieces have been lost, or never written, due to the lack of opportunities given to marginalised people. In this piece, we hear the accompaniment to a silent soloist.

Jaslyn Robertson

Jaslyn Robertson is a Melbourne-based composer and researcher navigating her composition practice with advocacy for equity in arts from the perspective of her queer identity. Her work spans across the fields of intermedia composition, electronic improvisation and experimentation with notation. Jaslyn's work has been performed in concerts and festivals across Australia, Canada and Germany. As a PhD candidate at Monash University with Professor Cat Hope, she is researching and composing works around ideas about censorship within composition.

Survival Kit

Survival Kit is a live electroacoustic piece that explores a connection between textual and musical meaning. It is a revisited take on the choral music in the contemporary computerized era. The piece is performed by a single performer in the live coding manner. The text is entered in the author's original computer music software Musoem, which triggers sections of pre-recorded music and corresponding processing algorithms. Survival Kit is a poem as much as it is a piece of music. All vocals were performed by Peter Traver, a tenor, using a recording score for individual lines, and edited and programmed into the software by the author.

Eugene Markin

Eugene Markin is a composer and sound artist, based in New York City. In recent years he participated in a number of experimental music performances, composed music for multimedia installations and audiovi-sual projects. His research interests include embodiment in electronic music performance, electroacoustic improvisation, generative arts, and computer-aided composition. His works were presented at multiple events and venues across Europe, including Helsinki Music Hall, Loop Festival and Ars Electronica. With a multimedia installation "New haven" Eugene won 3rd prize at Athens Digital Arts Festival in the category Web Art in 2020.

502 Days of Self

502 Days of Self is a new work reflecting on performance habits and internal change over long distances. Using machine learning, the personal gestural language of the composer on her novel instrument (the pressure-sensitive floors) is transformed to movement elements of simple shapes in Max. The performers sonify simple parameters in interlocking parts, drawing attention to their own movement and decision-making. This piece draws on the connection between open scores and improvisation with strict limits. This performance folds the piece in itself by adding the pressure-sensitive floors into the instrumentation. The latest iteration of this work plays with changing timbral control, the elasticity of the instrumentation and the relationship between timing and gesture examined from previous iterations.

Iran Sanadzadeh

Iran Sanadzadeh is a performer and composer. Her work explores the possible relationships between movement and sound using her set of terpsichora pressure-sensitive floors. She developed her floors to expand on the legacy of dancer Philippa Cullen and her earlier pioneering work in interactive floors. Her research and collaborative work focuses on interaction design for music, movement and dance. She teaches composition and music technology at Monash University.

Points of Convergence

POINTS OF CONVERGENCE is a music composition proposal for a performance incorporating technology based notation, featuring Lisa Mezzacappa on upright bass. The concept behind the work refers to the phenomenon in evolutionary computation that stops evolution when every individual in a population is identical. In the case of this piece, it is the point of comprehensibility of musical notation which allows the player to progress in the reading while the performance gestures are revealed through text and shapes that are offered for interpretive performance. These shapes and texts were taken from "Landscape Architecture", by John Ormsbee Simonds, which incorporates different lines, flows, and geometry to convey different moods. Due to the nature of real-time interpretation, the piece can vary between 10 and 12 minutes.

Shai Cohen

Born in Haifa (1968) working as a teacher, composer, and jazz performer. Cohen composes symphonic music, chamber music, electronic music, and music for solo instruments. Cohen's music has been performed at events including "ACL Asian Contemporary Music Festival" (2003/Japan, 2009/Korea, 2012/Israel, 2013/Singapore, 2016/Vietnam, 2018/Taiwan), ISCM, contemporary music festival (2006/Moscow Autumn, 2019/Estonia), "Aberdeen Music Prize" (2011), 34th Annual "Bowling Green New Music Festival" (2013), "Israeli Music Festival" (2004, 2012). Cohen is the director of the Music and Technology program at Bar-Ilan University teaching cours-es in Audio Synthesis, Advanced Studio Recording, Live Electronics Workshop, Arduino Workshop, Max/MSP/jitter Applications, Sound Engineering, Audio Applications, and Music Cognition Workshop. He is also a lecturer at Levinsky College of Education.

Their Lives Are Stripped of Meaning

In 2016, Australian author Richard Flanagan made a statement in a response to the Australian Government's policy on the treatment of refugees arriving in Australia by boat, which involves detention. "Their lives are stripped of meaning." In this piece, the vocalist sings these words, but they become incomprehensible as they are separated out over the 8 minutes of the piece; a direct reference to the indeterminate length of detention that Australia enforces upon refugees. Time passes, we forget and our ability to understand becomes difficult. In addition, the electronic part is created by sampling the instruments at certain moments in the piece, and strips away the timbral characteristics of the work, another metaphor for the consequences of this treatment of our fellow human beings. It was commissioned by Callum G'Froerer, and the Max Patch was created by Stuart James. The score is performed in the Decibel Score Player.

Cat Hope

Cat Hope's compositions engage elements of low frequency sound, drone, noise and improvisation. Her works have been performed at festivals internationally, broadcast on Australian, German, Italian, French and Austrian radio, and recordings of her works are published internationally. She is the director of the Decibel new music ensemble, who developed the Decibel ScorePlayer application. Cat is a represented composer with the Australian Music Centre, and her music is published by Material Press. Her first opera, Speechless, won the Best New Dramatic work in the 2020 Art Music Awards and she is currently a Fellow at the Hamburg Institute of Advanced Study.

Animated Notation Workshop

The Animated Notation Workshop [ANW] is an amalgamation of the work I have been pursuing with animated notation since 2010. Unlike previous works, the ANW is not a fixed and/or generative piece, but a sandbox built with p5.js designed for the real-time creation, presentation and performance of new works. Prior to performance, the performers will determine how they will interpret the various elements available in the score as well as what sonic impact their position on the screen might have. A performance of the ANW begins with a blank slate and the conductor, which may be me or another member of the ensemble/conference, begins to add notational symbols to the performance windows associated with each performer. Each performer follows their own window and interprets each symbol as the red attack line scrolls past it. Over the course of the performance, notational symbols are added, removed and repositioned as the conductor sees fit. There is no fixed duration for this piece.

Ryan Ross Smith

Ryan Ross Smith is a composer, performer and educator based in New York. Smith has performed throughout the US, Europe and UK, including performances at MoMA and PS1 [NYC] and Le Centre Pompidou [Paris, FR], has had his music performed throughout North America, Iceland, Denmark, Australia and the UK, has presented his work and research at conferences including NIME, ISEA, ICLI, ICLC, SMF, ACMC and TENOR, and has lectured at various colleges and universities. Smith is known for his work with Animated Notation, and his Ph.D. research website is archived at animatednotation.com. Current & recent projects include Duets [a series of remotely-produced duets with musical friends from around the globe], Lines and Patterns [musique concrete disguised as ambient music], and Green Dome [with Zeena Parkins and Ryan Sawyer]. Smith is currently an Assistant Professor of Music at the State University of New York at Broome.

CONCERT #3

Tuesday, May 16, 2023, 5:00 pm
New England Conservatory
Plimpton Shattuck Black Box Theatre

Concert Program

Music for Upright Bass and Mobile Phone Orchestra — Anders Lind

Lisa Mezzacappa, acoustic bass

Baion — Simon Hutchinson

Simon Hutchinson, "The Catalyst" custom interface

Kaleidoscore [NeoScore competition finalist] — Lauren McCall

Benjamin Eidson, alto saxophone; Emiliano Lopez, guitar

Incomplete, Open — duo B. : Lisa Mezzacappa + Jason Levis; with network-based scoring system designed & programmed by Tim Perkis

Lisa Mezzacappa, acoustic bass; Jason Levis, drums

CONCERT #3

Tuesday, May 16, 2023, 5:00 pm
New England Conservatory
Plimpton Shattuck Black Box Theatre

Program Notes / Bios

Music for Upright Bass and Mobile Phone Orchestra

Mobilephoneorchestra.com is a Web Audio API, developed to enable large-scale concert hall performances of polyphonic contemporary art music. The platform contains audio trigger instruments developed for the smart phone interface. Moreover, dedicated animated music notation in multiple individual parts, for both performance instructions and to conduct a MPO performance. The platform is very intuitive and developed for participatory performances involving people regardless of their musical backgrounds as a stand-alone MPO or together with professional musicians. Several compositions including a MPO as performers in combination with traditional performance settings as String Orchestra, Sinfonietta, chamber ensemble and soloists have been conducted by the composer Anders Lind within the last five years (see links to audio file and video file for examples). This performance is the first using real-time generated animated notation in multiple parts for the MPO, which will be handled by Lind.

Anders Lind

Anders Lind, composer and associate artistic professor at the Department of Creative Studies/ UmArts/ Umeå University/ Sweden. Lind develops and explores new performance practices within contemporary art music. His artistic research projects often involve novel interactive instruments/ platforms and/or animated music notation. MobilePhoneOrchestra.com, LINES interactive sound art and The Max Maestro – animated notation are examples of novel platforms developed by Lind.

Baion

Baion draws its inspiration from several distinct sources including northern Japanese shaman-ism, noise music, isochronic tones, and one-button games. Baion is performed on "The Catalyst" a custom interface that facilitates both performer and audience transition into an altered state. Kyma and Unity communicate via bidirectional OSC, enabling interactive, adaptive audio and visuals.

Simon Hutchinson

Simon Hutchinson is a creator and teacher of music, audio, and things tangentially related. His work synthesiz-es disparate ideas–European concert traditions and creative electronics; acoustic musical instruments and dig-ital video games; East Asian folk and American jazz, rock and funk–and these combinations yield novel musical experiences, engaging with the relationships between humans, technology, and society. Simon holds a PhD in Composition with supporting coursework in Inter-media Music Technology from the University of Oregon, and he is currently Associate Professor of Music at the University of New Haven.

Kaleidoscore [NeoScore competition Finalist]

Kaleidoscore is a graphic composition inspired by the artwork of kaleidoscopes and biomorphic patterns. Throughout this piece, the score goes through transformations that shape the images and their meaning as seen through the lens. Thank you to Neoscore for letting me take part in this project!

Lauren McCall

Lauren McCall is a composer and music educator from Atlanta, Georgia. She studied for her master's degree in music composition at the Vermont College of Fine Arts, and she is a Ph.D. student studying music technology at the Georgia Institute of Technology. Lauren has had compositions performed around North America and Europe. This includes her piece for piano, Shake the Earth, which was performed in Morehead, Kentucky, at Morehead State University's Contemporary Piano Festival, along with being performed in Eugene, Oregon, at the Oregon Bach Festival Composers' Symposium. Lauren enjoys collaborating with technologists, musicians, and artists, including Maggie Kane, owner of Streetcat.media and the Fifth House Ensemble. Along with composing, Lauren enjoys playing classical music and jazz on the clarinet and piano, spending time in nature, spending time with family and friends, and traveling.

Incomplete, Open

Today we are pleased to present the beta version of a new composition and digital scoring system, created in collaboration with electronic musician Tim Perkis. More than a few years ago, we discovered visual artist Sol LeWitt's series of drawings and sculptures, Incomplete Open Cubes (1974/1982), where he explored the 122 ways of "not making a cube, all the ways of the cube not being complete." We were transfixed by the obsessive, iterative quality of the work, and by the vast array of quirky symbols that LeWitt's serial process generated. It seemed to us that these symbols—each unfinished cube, whether perceived as a line drawing in two dimensions or a sculpture in three—could give rise to a system of musical notation. While LeWitt's process involved setting up a scenario and letting it run its course through serial operations, we decided to engage with the unsolved cubes more poetically, letting our compositional ideas flow from the character and personality of individual shapes. We organized the cubes into related "series" or "genealogies," composed musical material (vocabulary) both for series and for individual cubes, and also created processes (syntax) for how pre-composed material can interact and be manipulated, transformed and developed through improvisation in the course of performance. As we were creating this work and formulating its rules of engagement, we realized that we were developing a real-time collaborative compositional tool based on our own proclivities and interests as improvising composers—one that offers us options for musical content, form and procedure which may not emerge organically from a completely improvised performance.

The network-based digital score Tim programmed allows us to choose a "set" of a grid of cubes for any given performance ahead of time, and then select individual cubes or series of cubes in real time via an iPad control panel as we are playing. These cubes direct us towards composed musical material or rules for processing it—with listeners able to follow our decisions on the overhead screen as areas of the grid of cubes are selected and deselected throughout the performance. Our hope is that our musical decisions will be more transparent to audiences through this ability to watch the grid as we manipulate it over the course of our set, to help guide listeners in understanding the trajectory of our performance and our evolving relationship to the sounds and structures encoded in the cube symbols.

duo B. : Lisa Mezzacappa + Jason Levis

duo B., the San Francisco Bay Area improvising and composing ensemble of percussionist Jason Levis and bassist Lisa Mezzacappa, is a musical think tank of grand schemes and impossible scenarios. For more than a dozen years, the ensemble has developed and refined its singular approach to improvisation and composition, through cross-disciplinary projects with film and video, collaborations with improvising instrumentalists at home and abroad, study of repertoire by like-minded composer-improvisers, and immersion in the improvised-composed musical worlds of masters Wadada Leo Smith, Anthony Braxton, Cecil Taylor, Henry Threadgill, and others. Mezzacappa and Levis also co-lead the duo B. Experimental Band (dBxB), an unwieldy expansion of the duo into a large ensemble with flexible instrumentation and evolving personnel that performs in the Bay Area and when necessary, online.

CONCERT #4

Tuesday, May 16, 2023, 8:00 pm
New England Conservatory
Plimpton Shattuck Black Box Theatre

Concert Program

From Six Seasons: "Season 4: Migration"
(for any number of improvising musicians and pre-recorded sounds),

Lei Liang

Callithumpian Consort
Stephen Drury, Artistic Director; Stephen Marotto, cello;
Yukiko Takagi, Piano; Mike Williams, Percussion

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tendons for transformation

Kitty Xiao
[DIGISCORE / TENOR BOSTON 2023 commissioned composer]

Callithumpian Consort

Paths/Fields

Ingrid Laubrock
[DIGISCORE / TENOR BOSTON 2023 commissioned composer]

Callithumpian Consort

VISS 1 for Trumpet

Benjamin Eidson

Isaac Dubow, trumpet

MOTHERBIRD

Jessica Shand, Manuel Cherep, Jack Armitage

Jessica Shand, flute; Manuel Cherep, electronics;
Jack Armitage, artificial life simulation

CONCERT #4

Tuesday, May 16, 2023; 8:00 pm
New England Conservatory
Plimpton Shattuck Black Box Theatre

From Six Seasons, "Season 4: Migration"
(for any number of improvising musicians and pre-recorded sounds)

Six Seasons is a composition that features hydrophone recordings captured in the Chukchi Sea off the north coast of Alaska, one of the most inaccessible places to humans on earth due to the thick layers of ice that block access for most of the year. Hydrophones created at our University were deployed in this region and left alone for a full calendar cycle, while these recorded millions of data points at supersonic frequencies. The recordings were then studied and a microscopic subset of the entire data was shared with the music department to manipulate and amplify for live audiences. The final presentation of this work included a collaboration with the acclaimed Mivos Quartet, who at times provided antiphonal gestures and at others augmented the soundscape via mimetic techniques.

Lei Liang

Lei Liang (b.1972) is a Chinese-born American composer whose works have been described as "hauntingly beautiful and sonically colorful" by The New York Times, and as "far, far out of the ordinary, brilliantly original and inarguably gorgeous" by The Washington Post. Winner of the 2011 Rome Prize, Lei Liang is the recipient of a Guggenheim Fellowship, an Aaron Copland Award, a Koussevitzky Music Foundation Commission, a Creative Capital Award, and the Goddard Lieberson Fellowship from the American Academy of Arts and Letters. His concerto Xiaoxiang (for saxophone and orchestra) was named a finalist for the 2015 Pulitzer Prize in Music. His orchestral work, A Thousand Mountains, A Million Streams, won the prestigious 2021 Grawemeyer Award for Music Composition. Lei Liang was commissioned by the New York Philharmonic for the inaugural concert of the CONTACT! new music series. Other commissions and performances come from the Taipei Chinese Orchestra, Boston Modern Orchestra Project, Berkeley Symphony Orchestra, the Heidelberger Philharmonisches Orchester, the Thailand Philharmonic, the Fromm Music Foundation, Meet the Composer, Chamber Music America, the National Endowment for the Arts, MAP Fund, Mary Flagler Cary Charitable Trust, the Manhattan Sinfonietta, Arditti Quartet, Shanghai Quartet, the Scharoun Ensemble of the Berlin Philharmonic, San Francisco Contemporary Music Players, New York New Music Ensemble and Boston Musica Viva, pipa virtuoso Wu Man, violinist Cho-Liang Lin, among others.

tendons for transformation

tendons for transformation is a work which uses tactile electronics and visual perception for performance. Through responding to tactile transducers, contact mics and video, the performers form an interconnected web of relationships. Two transducers are placed inside the piano, and one on each the cymbal and bass drum. The piano and percussion embody the sound of the cello, as well as electronics which are routed to different parts of the ensemble. The piano and percussion perform, altering their instruments, their resonance, moving the position of the transducer and contact microphones in relation to each other. The instruments react to the fluctuating textural, timbral qualities of the electronics and video. Electronic sound and video are fascinating to me for their ability to convey movement, timbral and textural information which may not only be perceived differently, but translated differently. The composition sets a sensory environment in which the performer can navigate and interpret their sense of touch, sound, visual information, incorporating a kind of guided 'comprovisation', pointing out moments within the environment the performer can choose to react to.

Kitty Xiao [DIGISCORE / TENOR BOSTON 2023 commissioned composer]

Kitty Xiao is a composer, electronic musician and pianist from Naarm/Melbourne. Central to her practice is a search for unity in contemporary culture, human psyche, art and machine. Her music involves electro-acoustic and acoustic compositions, and live analog electronics which explore the relationship between sound and physical embodiment. Currently her music is concerned with questions which arise from the body, the experience it carries, and its role in social change. Through exploring the sonic limits of perception and sensation her music seeks to discover interconnectedness between social bodies and imaginaries. She is represented by

the Australian Music Centre, and her music has been released through Move Records (Novum, 2017) and Clan Analogue (Coordinate, 2017). She is the recipient of the 2022 APRA Professional Development Award (AU), 2021 Sounds Australia Export Stimulus Program (AU), 2020 Belle S. Gitelman Award (US), 2019 Howard Hanson Large Ensemble Prize (US) and is an Alfred Kitchin scholar (UK). She is currently pursuing a doctoral degree in Music Composition at Columbia University, and is studying with Georg Friedrich Haas and George Lewis. Selected performances of her work include: Ensemble Modern, Switch~ Ensemble, OSSIA New Music, line upon line percussion, Transient Canvas, Sarasota Orchestra, Panoramic Voices, Orlando Contemporary Chamber Orchestra, Frequency Shift, Modular World, Slow Rise Music, Clan Analogue, Australian National Academy of Music, Arts Centre Melbourne. Kitty holds a Master of Music (Composition) from the Eastman School of Music, Master of Music (Performance) from Trinity Laban Conservatoire of Music and Dance, Master of Teaching and Bachelor of Music from the University of Melbourne.

Paths/Fields

Paths/Fields is a modular piece that takes its ultimate form from a computer algorithm. I began composing it during a residency in Ucross, Wyoming, where I spent some time observing deer. Their alertness, agility, and ability to change direction quickly, sometimes for reasons mysterious to me, led me to include algorithms as a fourth "performer" or "conductor" that can mutate the score and throw challenges at the musicians. As a performer and composer, my work often straddles the boundaries of improvisation and composition. I seek unpredictability and renewal in every performance. My hope for this piece is that the algorithm's decisions will differ from human decision-making, thus adding an element of surprise to the musical game. I am deeply thankful for John Mallia's input. Without his technical expertise, this piece would not have been possible to realize.

Ingrid Laubrock [DIGISCORE / TENOR BOSTON 2023 commissioned composer]

Ingrid Laubrock is an experimental saxophonist and composer, interested in exploring the borders between musical realms and creating multi-layered, dense and often evocative sound worlds. A prolific composer, Laubrock was named a "true visionary" by pianist and The Kennedy Center's artistic director Jason Moran, and a "fully committed saxophonist and visionary" by The New Yorker. Her composition Vogelfrei was nominated "one of the best 25 Classical tracks of 2018" by The New York Times. Laubrock has performed with Anthony Braxton, Muhal Richard Abrams, Jason Moran, Kris Davis, Nels Cline, Tyshawn Sorey, Mary Halvorson, Myra Melford, Zeena Parkins, Tom Rainey, Tim Berne, Dave Douglas, Wet Ink and many others. Laubrock has composed for ensembles ranging from solo to chamber orchestra. Awards include Fellowship in Jazz Composition by the Arts Foundation, BBC Jazz Prize for Innovation, SWR German Radio Jazz Prize and German Record Critics Quarterly Award. She won best Rising Star Soprano Saxophonist in the 'Downbeat Annual Critics Poll in 2015 and best Tenor Saxophonist in 2018. Ingrid Laubrock has received composing commissions by The Fromm Music Foundation, BBC Glasgow Symphony Orchestra, Bang on a Can, Yarn/Wire, Grossman Ensemble, The Shifting Foundation, The Robert D. Bielecki Foundation, The Jerwood Foundation, American Composers Orchestra, Tricentric Foundation, SWR New Jazz Meeting, Jazzahead, Wet Ink Ensemble, The Jazz Gallery Commissioning Series, NY State Council of the Arts, Wet Ink, John Zorn's Stone Commissioning Series and the EOS Orchestra. She is an 2022/23 Artist-in-residence of The Wet Ink Ensemble. She is a recipient of the 2019 Herb Alpert Ragdale Prize in Music Composition, the 2022 Herb Alpert Ucross Prize in Music Composition and the 2021 Berklee Institute of Gender Justice Women Composers Collection Grant. Ingrid Laubrock is part-time faculty at Columbia University and The New School. She holds an MFA in Music Composition from Vermont College of Fine Arts.

VISS 1 for Trumpet

VISS (Visual Improvisation Scoring System) 1 uses various video processing techniques (fractalization, pinching, and pixelation) on a set video (a processed version of me walking around my apartment) to signal different frameworks in which the performer is to improvise. Each framework utilizes a different amount of reactivity to the performer ranging from being completely reactive to functioning like a traditional printed score. The processes algorithmically and independently develop throughout the piece with a second performer controlling when the video switches to a different video process. The algorithms used are a mix of stochastic and deterministic processes in an attempt to create a piece that forces the performer to continually adapt and create logic while very dense and contrasting transformations are constantly occurring. This piece utilizes Max/MSP/Jitter with the Bach and Flucoma libraries along with some custom JS objects.

Benjamin Eidson

Ben Eidson (b. 1999) is a saxophonist and computer musician from Columbia, South Carolina currently finishing an undergraduate degree in Jazz Studies at the New England Conservatory of Music. He regularly plays throughout the Northeast United States on both saxophone and laptop in various improvised contexts. His main teachers at NEC have been Efstratios Minakakis, John Malia, and Joe Morris.

MOTHERBIRD

MOTHERBIRD (2023) for augmented flute, electronics, and artificial life simulation reimagines the centuries-old flute-as-bird archetype in a 21st-century context in which anthropogenic climate change has drastically altered the soundscapes of the natural world. An early instantiation of Armitage's Agential Scores, a mode of score creation which challenges entangling human performers and musical instruments with artificial life simulations, the piece positions the flute as one organism within an indeterminate global ecosystem—an ecosystem in which changing sonic textures mediate the flocking behaviors of birds, or Boids, in real time. Per the speculative writings of Anna Tsing, Donna Haraway, Karen Barad, and others, the performer-composers ask: how might storytelling and fictionality serve as tools for deconstructing anthropocentric regimes? In MOTHERBIRD, reality is front-and-center, urging listeners to engage critically in becoming-with non-human and more-than-human worlds.

Jessica Shand

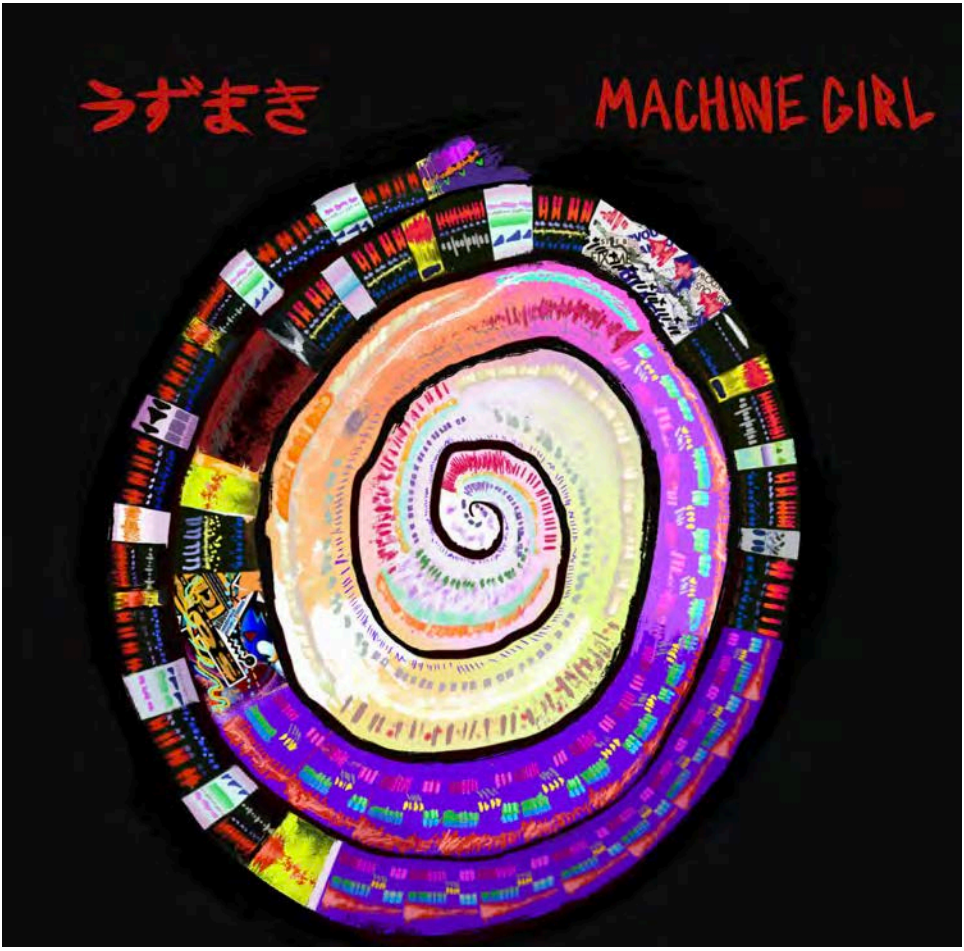
Jessica Shand is currently a Presidential Fellow at the MIT Media Lab, Jessica Shand is a performer-compos-er-scholar whose work spans mathematical topology, artificial creativity, and anything and everything related to her primary instrument, the flute.

Manuel Cherep

Manuel Cherep is a Fulbright Scholar at the MIT Media Lab working at the intersection of artificial intelligence and music, focusing on experimental and accessible interfaces for people with disabilities, seniors, or non-human animals.

Jack Armitage

Jack Armitage is a postdoctoral researcher at the Intelligent Instruments Lab at the Iceland University of the Arts in Reykjavik. He completed his Ph.D. in Prof Andrew McPherson's Augmented Instruments Lab in 2022.



うずまき by Machine Girl
Image by Zoe Mumford

FEATURED COMPOSERS

Ingrid Laubrock

Ingrid Laubrock is an experimental saxophonist and composer, interested in exploring the borders between musical realms and creating multi-layered, dense and often evocative sound worlds. A prolific composer, Laubrock was named a "true visionary" by pianist and The Kennedy Center's artistic director Jason Moran, and a "fully committed saxophonist and visionary" by The New Yorker. Her composition Vogelfrei was nominated "one of the best 25 Classical tracks of 2018" by The New York Times. Laubrock has performed with Anthony Braxton, Muhal Richard Abrams, Jason Moran, Kris Davis, Nels Cline, Tyshawn Sorey, Mary Halvorson, Myra Melford, Zeena Parkins, Tom Rainey, Tim Berne, Dave Douglas, Wet Ink and many others. Laubrock has composed for ensembles ranging from solo to chamber orchestra. Awards include Fellowship in Jazz Composition by the Arts Foundation, BBC Jazz Prize for Innovation, SWR German Radio Jazz Prize and German Record Critics Quarterly Award. She won best Rising Star Soprano Saxophonist in the 'Downbeat Annual Critics Poll in 2015 and best Tenor Saxophonist in 2018. Ingrid Laubrock has received composing commissions by The Fromm Music Foundation, BBC Glasgow Symphony Orchestra, Bang on a Can, Yarn/Wire, Grossman Ensemble, The Shifting Foundation, The Robert D. Bielecki Foundation, The Jerwood Foundation, American Composers Orchestra, Tricentric Foundation, SWR New Jazz Meeting, Jazzahead, Wet Ink Ensemble, The Jazz Gallery Commissioning Series, NY State Council of the Arts, Wet Ink, John Zorn's Stone Commissioning Series and the EOS Orchestra. She is an 2022/23 Artist-in-residence of The Wet Ink Ensemble. She is a recipient of the 2019 Herb Alpert Ragdale Prize in Music Composition, the 2022 Herb Alpert Ucross Prize in Music Composition and the 2021 Berklee Institute of Gender Justice Women Composers Collection Grant. Ingrid Laubrock is part-time faculty at Columbia University and The New School. She holds an MFA in Music Composition from Vermont College of Fine Arts.

Kitty Xiao

Kitty Xiao is a composer, electronic musician and pianist from Naarm/Melbourne. Central to her practice is a search for unity in contemporary culture, human psyche, art and machine. Her music involves electro-acoustic and acoustic compositions, and live analog electronics which explore the relationship between sound and physical embodiment. Currently her music is concerned with questions which arise from the body, the experience it carries, and its role in social change. Through exploring the sonic limits of perception and sensation her music seeks to discover interconnectedness between social bodies and imaginaries. She is represented by the Australian Music Centre, and her music has been released through Move Records (Novum, 2017) and Clan Analogue (Coordinate, 2017). She is the recipient of the 2022 APRA Professional Development Award (AU), 2021 Sounds Australia Export Stimulus Program (AU), 2020 Belle S. Gitelman Award (US), 2019 Howard Hanson Large Ensemble Prize (US) and is an Alfred Kitchin scholar (UK). She is currently pursuing a doctoral degree in Music Composition at Columbia University, and is studying with Georg Friedrich Haas and George Lewis. Selected performances of her work include: Ensemble Modern, Switch~ Ensemble, OSSIA New Music, line upon line percussion, Transient Canvas, Sarasota Orchestra, Panoramic Voices, Orlando Contemporary Chamber Orchestra, Frequency Shift, Modular World, Slow Rise Music, Clan Analogue, Australian National Academy of Music, Arts Centre Melbourne. Kitty holds a Master of Music (Composition) from the Eastman School of Music, Master of Music (Performance) from Trinity Laban Conservatoire of Music and Dance, Master of Teaching and Bachelor of Music from the University of Melbourne.

Xavier Davenport

Xavier Davenport (b. 1995) writes music that is meticulously structured, technologically experimental, humorous, theatrical, often improvisatory, and sometimes entertaining. His compositional interests include incorporating mathematics and physics in compositional procedures, animated and interactive digital scoring, ambisonic audio, and applications of quantum computers in composition. He is the recipient of the Sara Krieg Music Scholarship and Huebner Scholarship, and has worked with several ensembles including the Texas A&M University at Kingsville Saxophone Ensemble, the Vista Trio, Rage Thormbones, Ensemble Dal Niente, the New Hong Kong Philharmonia, the Pyrenean String Quartet, and Ensemble 20+. Davenport holds degrees from Wittenberg University (B. S. Physics, B. A. Music, B. A. Chinese Language & Culture), National Chiao-Tung University (M. S. Electrophysics), and DePaul University (M. M. Composition with distinction). Davenport is currently pursuing a DMA in music composition at the University of Illinois at Urbana-Champaign where he is a graduate assistant working in the Experimental Music Studios under Dr. Eli

Lauren McCall

Lauren McCall is a composer and music educator from Atlanta, Georgia. She studied for her master's degree in music composition at the Vermont College of Fine Arts, and she is a Ph.D. student studying music technology at the Georgia Institute of Technology. Lauren has had compositions performed around North America and Europe. This includes her piece for piano, Shake the Earth, which was performed in Morehead, Kentucky, at Morehead State University's Contemporary Piano Festival, along with being performed in Eugene, Oregon, at the Oregon Bach Festival Composers' Symposium. Lauren enjoys collaborating with technologists, musicians, and artists, including Maggie Kane, owner of Streetcat.media and the Fifth House Ensemble. Along with composing, Lauren enjoys playing classical music and jazz on the clarinet and piano, spending time in nature, spending time with family and friends, and traveling.

PERFORMER BIOS

LOADBANG

New York City-based new music chamber group loadbang is building a new kind of music for mixed ensemble of trumpet, trombone, bass clarinet, and baritone voice. Since their founding in 2008, they have been praised as 'cultivated' by The New Yorker, 'an extra-cool new music group' and 'exhilarating' by the Baltimore Sun, 'inventive' by the New York Times and called a 'formidable new-music force' by TimeOutNY. Creating 'a sonic world unlike any other' (The Boston Musical Intelligencer), their unique lung-powered instrumentation has provoked diverse responses from composers, resulting in a repertoire comprising an inclusive picture of composition today. In New York City, they have been recently presented by and performed at Miller Theater, Symphony Space, MATA, and by the Look and Listen Festival; on American tours at Da Camera of Houston, Rothko Chapel, and the Festival of New American Music at Sacramento State University; and internationally at Ostrava Days (Czech Republic), China-ASEAN Music Week (China), the Xinghai Conservatory of Music (China), Shanghai Symphony Hall (China), Visiones Sonoras Festival (Morelia, Mexico), and the Musikverein (Vienna, Austria). loadbang has premiered more than 450 works, written by members of the ensemble, emerging artists, and today's leading composers. Their repertoire includes works by Pulitzer Prize winners David Lang and Charles Wuorinen; Rome Prize winners Andy Akiho and Paula Matthusen; and Guggenheim Fellows Chaya Czernowin, George Lewis, and Alex Mincek. They are the ensemble in residency at Cornell University through the Steven Stucky Memorial Residency for New Music, and through a partnership with the Longy School of Music of Bard College in Boston, they are on the performance faculty of Divergent Studio, a contemporary music festival for young performers and composers held each summer.

TYLER BOUQUE, BARITONE VOICE [LOADBANG]

Tyler Bouque (b. 2000) is equal parts musicologist, baritone, and educator specializing in experimental opera and vocal music. Bouque's musicological interests are intimately tied to his praxis as a performer, focusing on issues of embodiment and vocal phenomenology in post-1980 opera, and the negotiations of time and space between narrative theater and sound-based music. He has given papers for the Gesellschaft für Musiktheorie and the University of Reading's Samuel Beckett Symposium, and completed archival research on the Sciarrino manuscripts at the Paul Sacher Stiftung. He has lectured on voice and performance for New England Conservatory and the Sydney Conservatorium, and writes liner notes for Huddersfield Contemporary Records. In addition, he is completing his first book, an act of subjective cartography revolving around the single question that informs all of his work: how can we understand opera as a genre in the twenty-first century?

ANDY KOZAR, TRUMPET(S) [LOADBANG]

A native of Pittsburgh, Andy Kozar is a New York City based trumpeter, improviser, composer and educator that has been called a 'star soloist' by TimeOutNY, noted for his 'precise trumpeting' by New York Classical Review and has been said to be 'agile as he navigated leaps and slurs with grace...he shifted between lyricism and aggression deftly' by the International Trumpet Guild Journal. A strong advocate of contemporary music, he is a founding member of the contemporary music quartet loadbang which has been called 'inventive' by the New York Times, 'cultivated' by The New Yorker, and 'a formidable new-music force' by TimeOutNY. With loadbang, his playing has been said to be 'polished and dynamic, with very impressive playing' by the Baltimore Sun, and that he 'coaxed the ethereal and the gritty from [his] muted instrument...and revealed a facility for shaping notes and color' by the San Francisco Classical Voice.

WILLIAM LANG, TROMBONE [LOADBANG]

Originally from Long Island, Trombonist William Lang is an active performer and improviser in New York and Boston. Hailed for his "superb performance" of James Bergin's Langmusik by the Boston Globe, William is dedicated to playing premieres and new music. He has performed solo recitals at New York City's premiere floating concert venue: Bargemusic, the Dimenna Center, the Stone, the Tank, the Gershwin Hotel, and Greenfield Hall, as well as other venues throughout the country. He has also appeared as a soloist with the Janacek Philharmonia in an acclaimed performance of Iannis Xenakis' trombone concerto: Trookh, as well as with the Fredonia Wind Ensemble on a tour of New York State; and as a guest soloist with Ensemble Pi and the Broadway Bach Ensemble, as well as on the Avant Media Festival, the Defacto Music Series, and the Electronic Music Festival.

ADRIAN SANDI, BASS CLARINET [LOADBANG]

Born and raised in San José, Costa Rica, Adrián began his clarinet studies in 1997 at the National Institute of Music of Costa Rica. He obtained his BM magna cum

laude from Virginia Commonwealth University, his MM with distinction from DePaul University, and his Doctorate in Musical Arts from the Eastman School of Music. His main professors have included Ken Grant, Jon Manasse, Larry Combs, Julie DeRoche, Dr. Charles West, and Jose Manuel Ugalde. Adrián Sandí is currently a freelancer based in San José, Costa Rica. Hailed by the New York Times as "a brilliantly cool yet tender soloist", he is an active solo recitalist and has given chamber music and solo performances throughout his musical career in different cities in Costa Rica, Panama, USA, Canada, China, Mexico, Germany, Belgium and Guatemala.

LISA MEZZACAPPA, BASSIST

Bassist, composer and improviser Lisa Mezzacappa has been an active part of California's vibrant music community for more than 20 years. Her music spans ethereal chamber music, electro-acoustic works, avant-garde jazz, music for groups from duo to large ensemble, and collaborations with film, dance, and visual art. Recent projects include Cosmicomics, a suite for electro-acoustic jazz sextet; Organelle, a chamber work for improvisers grounded in scientific processes on micro and cosmic scales; Glorious Ravage, an evening-length song cycle for large ensemble and films drawn from the writings of Victorian lady adventurers; and Touch Bass, a collaboration with choreographer Risa Jaroslow for three dancers and three bassists. This year she concludes her nine-episode serial audio opera, The Electronic Lover, a collaboration with writer Beth Lisick. In addition to leading her own projects in the US and Europe, Mezzacappa has performed as a sideperson with heroes such as Fred Frith, Marco Eneidi, Rhys Chatham, the Paul Dresher Ensemble, Mark Dresser's SIM Bass Ensemble, Beth Custer, Alex Cine, Ned Rothenberg, Phillip Greenlief, Vinny Golia and many others. www.lisamezzacappa.com

JASON LEVIS, DRUMS

The music of composer, drummer, and percussionist Jason Levis lives in the rich spaces where styles intersect and musical languages merge. His broad artistic scope to includes jazz, contemporary improvisation, modern classical composition, and dub. His wide-ranging creative efforts are skillfully bound by his innate sense of timbre, sonic space, rhythmic force, and his insatiable interest in discovery. Over the years his passion and curiosity have led him to search out the intersections of musical paths less traveled, and the resulting unique perspective is reflected in his music. Levis has led and been a collaborator in numerous ensembles in the San Francisco Bay Area and Berlin, Germany. These include the chamber/jazz ensembles Jason Levis Trio and Jason Levis Septet; live dub ensemble Joseph's Bones; the Berlin Boom Orchestra; the duo B. experimental band – a large ensemble for improvisers co-led by Lisa Mezzacappa; Italian cinema inspired group Citta di Vitti, Junior Reggae, and many more. Levis received his Ph.D. in composition from the University of California, Berkeley. He also studied with Richard Barrett and Fabien Lévy in Berlin, and Henry Threadgill during his residency at UC Berkeley. Levis is a Professor at the California Jazz Conservatory.

THE CALLITHUMPIAN CONSORT

Founded by pianist and conductor Stephen Drury sometime in the 1980's, the Consort is a professional ensemble producing concerts of contemporary music at the highest standard. Stephen Drury created the Callithumpian Consort in the belief that new music should be an exciting adventure shared by performers and listeners alike, and that the brand new masterpieces of our day are beautiful, sensuous, challenging, delightful, provocative, and a unique joy. Our audiences bring fresh ears to sounds never heard before; they bring their experiences from rock stadiums, jazz clubs, and internet electronica to the concert hall. They hunger for the new. Callithumpian's repertoire is the new and unusual, encompassing a huge stylistic spectrum from the classics of the last 100 years to works of the avant-garde and experimental jazz and rock. It is grounded in the musical discoveries of John Cage, Karlheinz Stockhausen, John Zorn, Giacinto Scelsi, Morton Feldman, and Iannis Xenakis. Active commissioning and recording of new works is crucial to our mission. We have worked closely with composers John Cage, Frederic Rzewki, Helmut Lachenmann, Michael Finnissy, Jonathan Harvey, Lee Hyla, John Zorn, John Luther Adams, Franco Donatoni, Lukas Foss, Christian Wolff, Jo Kondo and many others. Recordings are available on Tzadik, Mode, and New World Records.

STEPHEN DRURY, ARTISTIC DIRECTOR, CALLITHUMPIAN CONSORT

Well-known as a champion of twentieth-century music, Stephen Drury's repertoire extends from Bach, Schubert, and Liszt to the complete piano sonatas of Charles Ives and music by John Cage, Elliott Carter, Frederic Rzewski, John Zorn, Morton Feldman, Gyorgy Ligeti, and Luciano Berio. He has performed throughout the United States, Latin America, Europe and Asia, taking the sound of dissonance into remote corners of Pakistan, Greenland and Montana. He was a prize-winner in the Carnegie Hall/Rockefeller Foundation Competitions in American Music, and the United States Information Agency selected him twice for its Artistic Ambassador program. Recipient of grants from the National Endowment for the Arts and Meet the Composer, Drury has commissioned new works from John Zorn, John Cage, Terry Riley, Lee Hyla and Chinary Ung. Stephen Drury teaches at the New England Conservatory of Music. He has recorded for Mode, Tzadik, Avant, New Albion, Catalyst, MusicMasters and Neuma.

STEPHEN MAROTTO, CELLO [CALLITHUMPIAN]

A native of Norwalk, Connecticut, Stephen has received a Bachelors degree with honors from the University of Connecticut, and Masters and Doctor of Musical Arts degrees from Boston University. Stephen's formative teachers include Michael Reynolds, Kangho Lee, Marc Johnson, and Rhonda Rider. A passionate advocate for contemporary music, Stephen plays regularly with chamber groups throughout New England and also performs on various new music concert series in the Boston area and beyond. Stephen has attended music festivals at the Banff Centre, Cortona Sessions for New Music and SoundSCAPE festivals in Italy, and the and the Summer Course for New Music in Darmstadt, Germany. Stephen has a wide range of musical interest that include contemporary chamber music, improvisatory music, electroacoustic music, as well as bluegrass and folk. As a soloist, Stephen has commissioned several new works for the instrument, and is concerned with expanding and augmenting the tonal pallet of his instrument both with and without technology. In his spare time, Stephen is an avid hiker and outdoorsman.

YUKIKO TAKAGI, PIANO [CALLITHUMPIAN]

Yukiko Takagi received Bachelor's and Master's degrees from the New England Conservatory where she studied with Veronica Jochum and Stephen Drury. While a student at the Conservatory she was selected to perform in several Honors programs and appeared regularly with the NEC Contemporary Ensemble. Ms. Takagi has performed with the orchestra of the Bologna Teatro Musicale, the John Zorn Ensemble, the Auros Group for New Music, Santa Cruz New Music Works, the Harvard Group for New Music and the Chameleon Arts Ensemble. She performs regularly with the Eliza Miller Dance Company and the Ruth Birnberg Dance Company and gives frequent duo-piano concerts with Stephen Drury. Ms. Takagi is a featured performer with the Callithumpian Consort. Her recording of Colin McPhee's Balinese Cerimonial Dances was released by MusicMasters. At New England Conservatory Yukiko Takagi has appeared on the First Monday series at Jordan Hall, and is a teacher and guest artist for the Summer Institute for Contemporary Piano Performance.

MIKE WILLIAMS, PERCUSSION [CALLITHUMPIAN]

Hailed by The Boston Globe as "one of the city's

best percussionists," Mike Williams has performed throughout North America and Europe and is an active performer in Boston. An advocate for contemporary music, he is a founding artist and the ensemble director of Guerilla Opera, having served as artistic director for eleven seasons. Williams has worked with many of the leading composers of our time including Pierluigi Billone, Michael Finnissy, Philippe Leroux, Salvatore Sciarrino, Gunther Schuller, and Roger Reynolds among many others. He was a fellow of the Tanglewood Music Center and has performed at festivals including the Festival de Mexico, Gaudeamus Music Week, the Internacional Cervantino Festival, Monadnock Music, the Gaida Festival in Vilnius, Lithuania, and SICPP at New England Conservatory. Williams studied at Boston Conservatory, winning top prize in the concerto competition, and the Amsterdam Conservatory during which time he regularly performed with the Netherlands Radio Chamber Orchestra under Peter Eötvös. Williams serves on the faculty of the Boston Conservatory at Berklee.

ISAAC DUBOW, TRUMPET

Isaac Dubow is a trumpet player and composer from Brooklyn, New York. Since starting classical violin at age 4 he has played in a wide range of musical scenarios, and is currently performing around the northeast region with other young improvisers. Isaac has studied with some of the most prominent trumpet players in the world including but not limited to Adam O'farrill, Jason Palmer, and John Mcneil. While in his third year at the New England Conservatory, he is now studying composition with Davide Ianni.

BENJAMIN EIDSON, ALTO SAXOPHONE

Ben Eidson (b. 1999) is a saxophonist and computer musician from Columbia, South Carolina currently finishing an undergraduate degree in Jazz Studies at the New England Conservatory of Music. He regularly plays throughout the Northeast United States on both saxophone and laptop in various improvised contexts. His main teachers at NEC have been Efstratios Minakakis, John Mallia, and Joe Morris.

EMILIANO LOPEZ, GUITAR

Emiliano López (Mexico City, 1994) is a guitarist and noise musician originally from Mexico and Boston based. He studies Contemporary Musical Arts at New England Conservatory in Boston, where he specializes in electric guitar, electronic music and music production. Emiliano has studied privately with guitarists Joe Morris, Lautaro Mantilla, Eliot Fisk. Among his most significant projects are "Cantan el Bosque Descalzo" winner of the Ecos Sonoros 2021 award, "Máquina de Luz" (2022) presented at the New England Conservatory and the collaborative installation "Flores Compuestas" 2022 presented at the cultural center Árbol que Nace Torcido.

ORGANIZING COMMITTEE BIOS

Aaron Clarke
Aaron Clarke is a Boston based composer, performer, educator, and administrator. Active in various musical pursuits, he maintains associations with loadbang, Daniel Sonenberg, Cole Barbour, and the jazz-rock quartet AHHA, of which he is a founding member. As an educator, he draws from his varied musical background to tailor lessons to each student's pace and needs, be it performance, theoretical comprehension, or composition and songwriting. Clarke is Assistant Director for Longy's new music summer program Divergent Studio, and is also Manager for Academic Operations at Longy, where he is the Accompanying Coordinator. Aaron is currently in planning stages for the premiere of his opera Ambition Countering Ambition, and, with AHHA, recently released the group's full-length debut album, The Event Has Been Cancelled.

Anthony Paul De Ritis, Conference Chair
De Ritis's 2012 recording Devolution: Concerto for DJ and Symphony Orchestra featuring DJ Spooky and the Grammy-winning Boston Modern Orchestra Project was described as a "tour de force" by Gramophone. He is beginning in his 25th year at Northeastern University in Boston where he is Professor, former Chair of the Music Department (2003-2015), and co-founder of the Music Technology program. De Ritis completed his Ph.D. in Music Composition at the University of California, Berkeley, where he served as a teaching assistant to David Wessel at Berkeley's CNMAT; and engaged in summer study at the American Conservatory in Fontainebleau, France, under Philippe Manoury, Tristan Murail, and Gilbert Amy. He also holds an MBA in high-tech from Northeastern University.

Alexandra du Bois
The music of post-style composer of mostly notated music, Alexandra du Bois (Ph.D. Stony Brook University; M.M. The Juilliard School; B.M. Indiana University Jacobs School of Music), is often propelled by issues of indifference and inequality throughout the United States and the world. She has been described as "an intense, luminous American composer" (Los Angeles Times), and "a painter who knows exactly where her picture will be hung" (New York Times). She lives on traditional and unceded land of the Western Abenaki People and is Chair of the Composition & Theory Department at the Longy School of Music. Recent commissions include those from The Chamber Music Society of Lincoln Center New York, Riot Ensemble London, Institut Curie Paris, and Kronos Quartet San Francisco.

James Gutierrez
James is an interdisciplinary educator, researcher, composer, and conductor whose mission is to investigate and realize the potential of music-making as a force for social change, community building, and personal wellbeing. He is currently the directing manager for Cambridge Common Voices, a neurodiverse community choral collaboration between Harvard University and the Threshold Program at Lesley University. James is a Visiting Assistant Teaching Professor in the Music Department at Northeastern University, and has previously taught at UC San Diego (where he earned his PhD in Music: Integrative Studies), Chapman University, and was recognized for Excellence in Teaching at Harvard University.

Rébecca Kleinberger
Rébecca Kleinberger (PhD) is an Associate Professor of Music and Voice Technology at Northeastern University, holding a joint appointment with the College of Arts, Media, and Design and Khoury College of Computer Sciences. Her work spans from assistive technology to vocal experiences design, including inner-voice and interspecies interaction design. Her research connects various fields including HCI, computer sciences, music technology, wearable computing, machine learning, neurology, psychology, and animal-computer interaction. She holds a PhD and Master's from the MIT Media Lab, a Master in Engineering from ENSAM Paris, and a Master in Computer Graphics from UCL, London.

John Mallia, Sonic Works Chair
John Mallia has been a member of the Composition faculty and Director of the Robert Ceely Electronic Music Studio at the New England Conservatory of Music since 2005, where he has taught courses in Electroacoustic Music, Notational Techniques, Composing for Film and Multimedia, and Site-specific Composition. His music has been performed throughout the U.S. and internationally. Mallia was a Visiting Assistant Professor at the Center for Experimental Music and Intermedia (CEMI) at the University of North Texas (2004-5) and was composer-in-residence at the Institut de Musique Electroacoustique (Bourges, France; 1993, 2002). Additionally, he has been a member of the faculty at Vermont College of Fine Arts since the founding of their low-residency MFA in Music Composition program in 2011.

Lisa Mezzacappa
Lisa Mezzacappa is a San Francisco Bay Area-based composer, bassist, bandleader, and producer. Called "one of the most imaginative figures on the Bay Area creative jazz scene" by The Mercury News and "a Bay Area treasure" by KQED public radio, she has been an active part of California's vibrant music community for nearly 20 years. Mezzacappa's activities include ethereal chamber music, electro-acoustic works, avant-garde jazz, music for groups from duo to large ensemble, and collaborations with film, dance and visual art. As curator, she programs the annual JazzPOP concert seres at the UCLA Hammer Museum in Los Angeles, now in its 15th year; and co-organizes the new Do-Over Music Series in Oakland, CA with drummer Jordan Glenn.

Katarina Miljkovic
Katarina Miljkovic investigates the interaction between science, music, and nature, through collaborative musical performance. Miljkovic has been working on the sound mapping of the elementary rules from Stephen Wolfram's New Kind of Science. She presented her exploration in this new field at MCM 2007; ECMST ~ MASA 2010, Berlin; EUROMicro-

Fest 2017; Improtech Paris – Philly 2017; 2022 Earth Day Art Model Telematic and Media Festival; Boston Cyberarts festivals, Cambridge Science festivals, and Boston First Night. Her generative music has been described as "a refined, hypnotic dream" (Danas) "a work of musical and visual slow-motion with only a few delicately elaborated musical metaphors" (Radio Belgrade).

Jie Ren
Dr. Ren is a cognitive neuroscientist. She received her Ph.D. from Brown University and was the first student in the history of Brown University to receive the Open Graduate Education Award in statistics. Her research focuses on understanding how infants and children make sense of the structures of their surrounding world, including music, language, and action, and how learning shapes their cognitive development. Dr. Ren is known for her interdisciplinary scope and capacity to address questions in music and language cognition. Her research methods span behavioral measures, neurological (EEG, MEG, fMRI & fNIRS) experiments, and machine learning and statistics advances. Dr. Ren is also a rising classical singer specializing in opera and oratorio performances.

Jeremy Van Buskirk, Paper Chair
Jeremy Van Buskirk is Associate Dean for Academic Affairs at the Longy School of Music of Bard College, and Professor of Composition, Theory, and Computer Music. His large ensemble music have been performed in Carnegie Hall and Chicago Symphony Center, and his electroacoustic music have been released on the SEAMUS, Ablaze Records, and Tell-Tale Music Media music labels; and published by World Projects Publishing. Jeremy's passion for electroacoustic music pedagogy led to his development of the Max Composition Environment (MAXCE) designed to aid composers learning to write pieces using the MAX programming language. B.M., Berklee College of Music; M.M. (Composition), M.M. (Modern American Music), Longy School of Music; D.M.A. (Composition), Boston University. Principal teachers: Lukas Foss, Richard Cornell, Joshua Fineberg, John Fitz Rogers, and Paul Brust.

Victor Zappi, Scientific Program Chair
Victor Zappi is an Assistant Professor of Music Technology at Northeastern University. Being both an engineer and a musician, he focuses on the design and the use of new interfaces for musical expression. How can we use today's most advanced technologies to build novel musical instruments? In what ways can these instruments comply with and engage the physical and cognitive abilities of performers as well as audience? And what new forms of musical training and practices are required to master them? Victor's research interests span virtual and augmented reality, physical modeling synthesis, music perception and cognition, and music pedagogy.

Host Institutions:

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