

# **Instruments Interfaces Infrastructures**

**An Interdisciplinary Conference  
on Musical Media**

**Harvard University Department of Music | Cambridge, MA**

**May 11–13, 2023**

## **Organizing Committee**

Landon Morrison, lead organizer

Carolyn Abbate

Michèle Duguay

Toru Momii

Alexander Rehding

## **Special thanks to ...**

Harvard University's Provostial Fund Committee for the Arts and Humanities for their vital financial support in helping to make this conference a reality

Harvard's Department of Music staff, including Beth Mullins, Kalan Chang, Kai Crull, Angie McNamara, Jonathan Savilonis, and an extra-special thanks goes to Nancy Shafman, who provided expert guidance at every stage of planning for this event

Senior media advisor, John Pax, for sourcing equipment, solving technical logistics, and running sound at the Holden Chapel concerts and other venues throughout the conference; likewise, a big thanks to Hans Tutschku, Seth Torres, and everyone involved in the Harvard University Studio for Electroacoustic Composition (HUSEAC) for sharing space and collaborating on the HYDRA concerts

Berklee College of Music faculty in the Electronic Production and Design program, including Michael Bierylo, Michele Darling, and others, for collaborating on workshops, panels, and late-night shows, which introduce an important inter-institutional dynamic to the conference proceedings

Reviewers—including Carolyn Abbate, Michèle Duguay, Weilu Ge, Christopher Lock, Toru Momii, Alexander Rehding, Rachel Rome, and Samantha Wolf—for evaluating a large volume of research and creative proposals submitted in response to the conference CFP

Harvard students enrolled in seminar Music 230: "Instruments, Interfaces, Infrastructures" (Fall 2022), including Stephen Ai, Aarya Kaushik, and Hanwen Zhang, who made significant contributions in our weekly discussions and helped to map the conceptual contours of what has evolved into this conference

## A Word of Welcome

Greetings and welcome to the Harvard University Department of Music! We are excited to present a three-day conference featuring papers, panels, workshops, and concerts, all engaged with the triple thematic of *instruments, interfaces, and infrastructures*. As indicated in the Call for Proposals, the aim of this conference is to “imagine new theories, methodologies, and practices that scale between layers of musical media,” finding points of contact between objects and networks, tools and techniques, materials and ideas. We look forward to exploring these in-between spaces together in the coming days!

With more than one hundred participants, the conference program brings together researchers and artists from a wide variety of fields, including music studies subdisciplines, as well as history, anthropology, philosophy, media studies, computer science, and engineering. Each discipline offers a unique perspective on the conference’s key themes, so it is thrilling to think of what we might learn from each other by bringing these perspectives into a cross-disciplinary dialogue. To help facilitate constructive crosstalk, we invite you to venture outside your comfort zone and remain open to other ways of knowing, while also being generous in sharing your own expertise, and respectful in navigating whatever differences of opinion may arise in the process.

As you wander around the music building, be on the lookout for several audio-visual installations, which will run throughout the conference. You will also want to check out Harvard’s Collection of Historical Scientific Instruments at Putnam Gallery and attend one of the demonstrations of acoustic artifacts to be held on Thursday and

Friday afternoons. Otherwise, you can find paper / panel sessions in the music classrooms (4-9), creative workshops (mostly) in Holden Chapel, and concerts spread across Holden, Paine Hall, and Queen’s Head Pub. And whenever you need to take a break, make yourself at home in the Taft Lounge, where we will make food and drink available (including most importantly, a steady supply of tea and coffee!).

It requires a huge collective effort to make a conference like this happen, not only from those Harvard colleagues listed on the previous page, but from the dedicated scholars and artists who have travelled to Cambridge, MA to share their work, and from all of the attendees who show up ready to listen and ask questions over the course of back-to-back sessions, three days in a row. To each of you, thanks for taking part in what promises to be an extraordinary conference, and we look forward to seeing what kinds of new ideas and critical approaches emerge from this collaborative space.

Sincerely,

Landon Morrison  
On behalf of the IIICON Organizing Committee

## Venues

Conference events will take place at multiple venues across the Harvard University campus, including:

- **Department of Music** will act as a central hub for conference sessions occurring in the various classrooms (#5-9), as well as workshops and concerts in Paine Hall, audio-visual installations in the common areas, and coffee breaks/ receptions in the Taft lounge
- **Yenching Auditorium** will provide a large gathering space for the daily keynote addresses
- **Holden Chapel** will be used for concerts on Thursday and Friday evenings, as well as creative workshops all three days
- **Cambridge Queen's Head Pub** will be the site of late-night shows on Thursday and Friday, allowing everyone to relax and unwind with music, food, billiards, darts, and more

\* NOTE: see opposite page for a map of Harvard's campus showing the location of each venue

## Conference Session Types

Several different session types are scheduled as part of the conference, including:

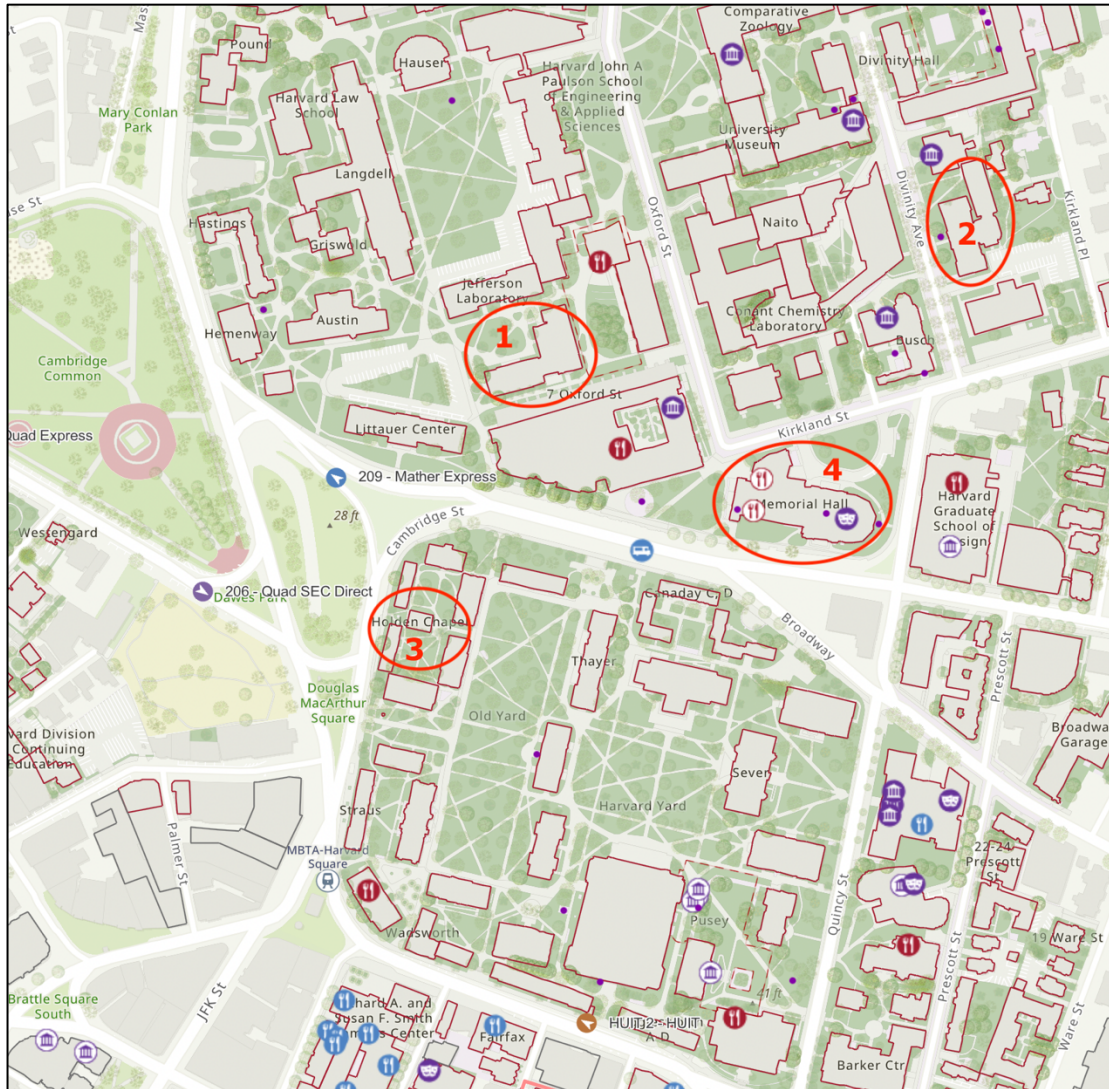
- **Paper sessions** featuring multiple 20-minute papers followed by 10-minute Q&A periods
- **Panel discussions** featuring a group of scholars and/or artists engaged in dialogue around a central theme or question
- **Workshops** featuring hands-on, practice-based approaches, as well as collaborative demonstrations of technology and reflections on the creative process
- **Keynote addresses** featuring invited speaker(s) responding to one of the conference themes
- **Concerts** featuring live performances with electronics, audio-visuals, and spatial sound systems

## WIFI Access

Internet access is available to all conference attendees through the wireless network "Harvard University" by selecting "I am a Guest" and registering on your personal device (n.b., further details may be found online at <http://getonline.harvard.edu>).

A PDF version of the conference program can be accessed online at <https://sites.harvard.edu/instruments-interfaces-infrastructures/>.

## Harvard Campus – Conference Venues



1.) Department of Music, 2.) Yenching Auditorium, 3.) Holden Chapel, 4.) Queen's Head Pub

# **Instruments, Interfaces, Infrastructures: An Interdisciplinary Conference on Musical Media**

Harvard University Department of Music | Cambridge, MA  
May 11 – 13, 2023

## **THURSDAY AFTERNOON**

**\* Registration and Welcome Reception [12:00pm – 1:30pm, Music Building]**

**Demonstration of Acoustic Artifacts from Harvard's Collection of Historical Scientific Instruments [1:45pm – 3:15pm, Room 4]**

Sara Schechner, Daniel Davis, and Allen Crockett

**Laws, Patents, and Musical Notation [1:45pm – 3:15pm, Room 9]**

Peter McMurray, "Is Beatboxing Haram? On the Interface of Mouths, Beats, and Islamic Law in the Digital Age"

Ginger Dellenbaugh, "Interfaces for Specific Cases: Music Notation Patents of the USPTO"

Matthew Mendez, "Fiduciary Media: On Music's Contractual Organologies"

**Transhistorical / Intercultural Soundscapes [1:45pm – 3:45pm, Room 6]**

Fanyi Faye Ma, "Listening to 静: Political Affect and Remembrance in 2022 Shanghai Covid Lockdown"

Winnie W.C. Lai, "Soundwalking Hong Kong, Now and Then: Infrastructural Acoustic vs Counter-infrastructural Acoustics"

Ravi Krishnaswami, "Sympathetic Strings: The Sitar in the Western Imagination"

Luke Riedlinger, "Disrupting Orchestral-ness in Ornette Coleman's *Skies of America*"

**Workshop: Networked Modular Performance [1:45pm – 3:15pm, Holden Chapel]**

Matthew Davidson and Berklee Networked Modular Ensemble

**Digital Instrumentality and Automation [4:00pm – 5:00pm, Room 9]**

Daniele Shlomit Sofer, "Reason and Measurement in Automated Music Analysis"

Andrew McPherson, "Digital Musical Instrument Design as Critical Engineering Practice"

**Workshop: Performing Sonic and Instrumental Agencies [3:30pm – 5:00pm, Holden Chapel]**

Erik DeLuca, "Dispossessed Sound"

Jack Armitage, "Agentology for Organology: Cyber-, Bio-, and Ecossemiotic Perspectives on Instrumental Agency"

Max Schaffer, "lulu10tacles: Diving to the Dark Depths of Monstrous Embodiments in the Post-Internet"

**Reinterpreting Historical Interfaces [4:00pm – 5:00pm, Room 6]**

Theodora Serbanescu-Martin, "Henri Herz's Dactylion & the Prosthetics of Nineteenth-Century Pianism"

Joti Rockwell, "Plucked on Bach: Studying the Instrumental Idioms of the BMG Family"

**KEYNOTE 1: Instruments [5:30pm – 6:30pm, Yenching Auditorium]**

Emily Dolan, "On the Edges of Technology"

## **THURSDAY EVENING**

### **Concert 1a [8:00pm – 10:30pm, Holden Chapel]**

Luciano Azzigotti and Jack Adler-McKean, *Incursion* (2023) for tuba and electroacoustic resonators

Luhee Hyunkyung Shin, *Nuk* (2023) for Contrabass and Live Electronics

Kasey Pocius and Tommy Davis, *eTu{d,b}e* (2022) with spatialized improvising agents

Quentin Lauvray, *Enfant, apprenez-nous à parler* (2022) for eTube and live electronics

Ningxin Zhang, *Kagemusha* (2022) for Live Pipa and Electronics

Alma Laprida, *Improvisation* for marine trumpet and electronics

Alexander Ishov and Theocharis Papatrechas, *Morphés I.5* (2023) for flutist, fixed media, live electronics, and spatialization

### **Concert 1b [9:00pm – 12:00am, Queen's Head Pub]**

Featuring late-night DJ sets by Harvard and Berklee music students

## **FRIDAY MORNING**

### **\* Coffee and Pastries [8:30am – 9:15am, Lounge]**

### **Workshop: Open-source and Networking Tools to Deploy Ephemeral Immersive Spaces [9:15am – 10:45am, Room 9]**

Edu Meneses and Thomas Piquet

### **Gendered Spaces in the History of Music Technology [9:15am – 10:45am, Room 6]**

Katja Heldt, "Women at European Studios for Electroacoustic Music in the Early 1950s – A Feministic Reading of the Studio as Space"



Kelli Smith-Biwer, "“I Want My Stuff Really Separate”: Modular Masculinity and U.S. Midcentury Hi-Fi Culture”

Erik Broess, "Toneful Hands & Nimble Fingers: Gender, Factory Labor, and the Mythology of Builder-Signed Amplifiers from Fender’s “Tweed” Era, 1948-1960”

### **Materialist Organology [9:15am – 10:45am, Room 4]**

Michael Dekovich, "A Timeline of Labor Arbitrage in the Electric Guitar Industry”

Abigail Byrd, "Craft or Commodity? Unearthing the Impact of the String Instrument Industry”

Stephan Hammel, "The Recorder in the Age of Mechanical Reproduction”

### **Panel Discussion: Music Pedagogy in the Age of Digital Instruments [11:00am – 12:30pm, Room 9]**

Daedelus, Rachel Rome, Eran Egozy, and Ramon Castillo

### **Virtual Instruments and Collective Sonic (Sub)Cultures [11:00am – 12:30pm, Room 6]**

Elena Razlogova, "Freeform Radio Station as a Musical Instrument”

Jack McNeill, "The Nightclub as Instrument: Performing Club Culture in Electroacoustic Composition”

Robert Strachan, "Eurorack: Technology, Materiality and the Virtual in Contemporary Modular Synthesizer Culture”

### **Performance-based Studies of Virtuosity and Artistic Identity [11:00am – 12:30pm, Room 4]**

Shanti Nachtergaele, "Sociomaterial Constructions of the Virtuoso: D. Dragonetti and G. Bottesini”

Theresa Coffey, "Music Mediation as Interface for Artistic Identity”

Jiryis Ballan, "Unearthing the Latent Sounds of the Buzuq: An Expedition Through the Synthesis Processes from Instrument Sound Board to Virtual Instrument.”

## **FRIDAY AFTERNOON**

### **Workshop: *EMKVL*T [1:00pm – 5:00pm, Holden Chapel]**

Margaret Schedel, Sofya Yuditskaya, Jess Rowland, Susie Green, and Alyssa Wixson

### **Demonstration of Acoustic Artifacts from Harvard's Collection of Historical Scientific Instruments [1:45pm – 3:15pm, Room 4]**

Sara Schechner, Daniel Davis, and Allen Crockett

### **Panel Discussion: Inclusive Co-Creation in and of Online Sonic Spaces [1:45 – 3:15pm, Room 9]**

Patricia Alessandrini, Hans Kretz, Sophia Alexandersson

### **Historical Instruments of Music / Science [1:45pm – 3:15pm, Room 6]**

Christina Dörfling, "Switched and Wired: On the Making of Early Electronic Musical Instruments"

Lee Cannon-Brown, "The Global Turn, Historicized: Henry Cowell, the Rhythmicon, and Instruments of Global Music Theory"

Henry Burnam, "Gestalt Psychology and Erich von Hornbostel's Instruments of Music Theory"

### **Workshop: The "Polymorphic Instrument" in Georgia Spiropoulos's *Roll... n' Roll... n' Roll* for Harp and Live Electronics [2:45pm – 3:45pm, Paine Hall]**

Robert Hasegawa, Alex Tibbitts, and Frédéric Le Bel

### **Elemental Media as Musical Culture [3:30pm – 5:00pm, Room 9]**

Xenia Benivolski, "The Sky's Like a Bell—the Moon is its Tongue"

Bailey Hilgren, "A Gut-Wrenching Sound: Gut Strings, Warm Bodies, and Rehydrating Viscera"

Kevin Toksöz Fairbairn, "Sounding Decay: Instruments, Craft, and Material Agency"

## **Mapping Networks of Audio-Technical Discourse [3:30pm – 5:00pm, Room 6]**

Pablo Dodero, "Translanguaging in Mexican Electronic Music Instrument Designers"

Sarah McDonie, "The Whole Earth Catalog and Performance Art: Tools for Countercultural Living"

Mikkel Vad, "The ECM Record Label, Manfred Eicher, and Discourses of European Auteurism in Jazz Record Production"

## **Workshop: HYDRA System [4:00pm – 5:00pm, Paine Hall]**

Hans Tutschku

## **KEYNOTE 2: Interfaces [5:30pm – 6:30pm, Yenching Auditorium]**

Tara Rodgers and Jonathan Sterne, "Interface Writing Games: Aesthetics, Technics, Power"

## **FRIDAY EVENING**

### **Concert 2a [8:00pm – 10:00pm, Holden Chapel]**

Margaret Schedel, Sofya Yuditskaya, Jess Rowland, Susie Green, Alyssa Wixson and EMKVLTL performers, devised improvisation

Patrick Hartono, *Ciung Wanara* audiovisual performance

Cecilia Suhr, *Humanity: From Survival to Revival* (2022) for audiovisual performance

Sabe, *Mental Feedback Loop* (2023), an audiovisual performance using voice and no-input mixer

### **Concert 2b [9:00pm – 12:00am, Queen's Head Pub]**

MIT FaMLE Laptop Ensemble

Daedelus

Dan Freeman

## **SATURDAY MORNING**

### **\* Coffee and Pastries [8:30am – 9:15am, Lounge]**

### **Gestural Mapping and Physical Modelling in Digital Instruments [9:15am – 10:45am, Room 9]**

Aida Khorsandi Ardebili, "Haptic Aurality: An Onto-Epistemological Inquiry in Gesture-Controlled DMIs"

Doug Barrett, "Laetitia Sonami's Lady's Glove and the Hand as Digital Interface"

Michele Ducceschi, "Physical Modelling: Enabling Ideas and Current Directions"

### **Workshop: Accessibility, Technology and Solidarity: An Emerging Institutional Praxis for Musicking [9:15am – 10:45am, Room 4]**

Nasim Niknafs and Ely Lyonblum

### **Workshop: Body/ Bodily Resonance [9:15am – 10:45am, Holden Chapel]**

seah (aka Chelsea Heikes)

### **Organs [10:00am – 12:00pm, Room 6]**

Annie Garlid, "Viral Organs: Materiality and Sacrality in Contemporary Experimental Music"

Alan van Keeken, "A Democratic Interface for Popular Music?"

Fanny Gribenski, "The Organ as Colonial Infrastructure: Instruments, Empire, and Maintenance"

George Rahi, "Phantoms in the Machine: Mediation and the 21st Century 'Hyper-Organ'"

### **Politics of Musical Infrastructures [11:00am – 12:30pm, Room 9]**

Raphael Börger, "Smart Musical Infrastructures and "Infrastructuralization" – The Case of the Internet of Musical Things (IoMusT)"

Daniel Villegas Vélez, "Timbral Manipulations, Determined Unpredictability, and the Anthropocene in a Colombian Sound Installation"

Brian House, "Microphone Project"

## **Analyzing Instrumental Affordances in Contemporary Music [11:00am – 12:30, Room 4]**

Noah Kahrs, "Oscillators' Affordances in Ryoji Ikeda's and Maryanne Amacher's Compositional Theories"

Nathan Cobb, "Becoming Machine Becoming Human: Unstable Interfaces in Kaija Saariaho's *Amers* (1992)"

Mingyeong Son, "Recontextualization of Korean Woman Composers' Traditional Instruments in the Global Era: With a Focus on Unsuk Chin and Jin Hi Kim"

## **Workshop: Live-Coding Practices [11:00am – 12:30pm, Holden Chapel]**

Ian Hattwick

## **SATURDAY AFTERNOON**

### **Temporalities of Musical Media [1:45pm – 3:15pm, Room 9]**

Steffen Just, "Machines that Make Time: Addressing the Technology of the Player Piano and Piano Rolls"

Florian Walch, "The Record Player as Gateway to Future Extremes: Time Axis Manipulation as Creativity in Early Extreme Metal"

Christopher Klauke and Valentin Ris, "Interfacing Micro-Time Machines 1900/2000: The cultural techniques of the tonometer and DAW"

### **Disability Studies and Musical Interfaces [1:45pm – 2:45pm, Room 6]**

Rachel Hottle, "Joni Mitchell, the Guitar/Body Interface, and Musical Composition as Life Writing"

Stephanie Probst, "From Blind Writing to Hyper-Visuality: Intersections between Music, Dis/Ability, and Tactile Interfaces in (Musical) Typewriters"

## **Noisy Interfaces [1:45pm – 2:45pm, Room 4]**

Joseph Auner, "Feedback as Interface"

Richard Beaudoin, "Wax Cylinder Music: Surface Noise as Fluttering Wings in Anna Krushelnytska's Ukrainian Lament"

## **Workshop: New Instruments [1:45pm – 5:00pm, Holden Chapel]**

Habeen Chang, "Rhythm Games: Musical Instruments or Controllers Without Control?"

Alyssa Aska, Klaus Lang, Pablo Abelardo Mariña Montalvo, and Martin Ritter, "FRESCOBALDI2: Enharmonic enhancement for keyboard instruments"

Dan Freeman, "Future Instruments"

Sabe, "How does the voice, the body and the no-input mixing interconnect in a live audiovisual performance?"

Alexander Ishov (aka Sasha) and Theocharis Papatrechas, "PrismaSonus: Unmasking and Choreographing Hidden Nuances in Flute Playing via Microphone Placement"

Luciano Azzigotti and Jack Adler-McKean, "Electroacoustic Resonators in *Incursiort*"

## **Techno-Vocality [3:00pm – 5:00pm, Room 6]**

Cathy Lucas, "Performing Speech: Voice as Instrument in Wolfgang Von Kempelen's Mechanical Speech Project"

Will Mason, "Holly, Plus Whom?: The Holly+ Deepfake and Musical Labor Under Artificial Intelligence"

Zeynep Bulut, "Biosensing Musical Interface as Tactile Speech"

Stefan Greenfield-Casas, "Virtual Ventriloquism: The Live-2D Hyperreal"

## **Networked Communities of Instrumental Theory and Practice [3:30pm – 5:00pm, Room 9]**

Ian Hattwick, "Musicking on the Web: An Investigation Into Current and Emerging Practices"

Kate Galloway, "Instrumentality and the Digital Animal: Audiovisual Memes, Synthesized Animals, and the Timbral Treatment of the Nonhuman in Viral Media"

William O'Hara, "Solfeggio Tones: Digital Mythology and the History of Music Theory"

## **KEYNOTE 3: Infrastructures [5:30pm – 6:30pm, Yenching Auditorium]**

Sumanth Gopinath, "Digital Music Commodity Chains and Asset Chains: Listening to the Warp and Woof of the Capitalist World System" (co-authored with Eric Drott)

## **SATURDAY EVENING**

### **Concerts 3a and 3b [7:30pm and 9:30pm, Paine Hall]**

Both concerts use the HYDRA loudspeaker setup, but the early concert highlights student improvisations and fixed-media compositions, while the late concert features two solo works:

Hans Tutschku, *Herkunft-entschlüsseln-entbehren* (2019) for cello and 9-channel live-electronics (w/ Martina Schucan)

Georgia Spiropoulos, *Roll... n'Roll... n'Roll* (2015) for harp and electronics (w/ Alex Tibbitts and Frédéric Le Bel)

### **\* Reception [6:30pm – 7:30pm / 10:30pm – 11:30pm, Lounge]**

## **ALL THREE DAYS**

### **Audio-Visual Installations [Music Building]**

Sebastian Adams, *Stolen Music*

Stefanie Egedy, *BODIES AND SUBWOOFERS (B.A.S.)*

Weilu Ge and Kelon Cen, *FEED 3.0*

seah (aka Chelsea Heikes), *Conduits of the Hydrosphere: Dinosaur Piss Runs Through Our Veins*

# Thursday, May 11<sup>th</sup>

Thursday, May 11	Room 9	Room 6	Room 4	Yenching Auditorium	Holden Chapel	Paine Hall	Queen's Head Pub	
12:00 PM	Registration + Welcome Music Building							
12:30 PM								
1:00 PM								
1:30 PM								
2:00 PM	<b>Paper Session</b> <i>Laws, Patents, and Musical Notation</i>	<b>Paper Session</b> <i>Transhistorical and Intercultural Soundscapes</i> (Lai, Ma, Krishnaswami, Riedlinger)	<b>Tour / Demonstration</b> <i>Harvard Collection of Historical Scientific Instruments</i> (Schechner)					<b>Workshop</b> <i>Networked Modular Performance</i> (Davidson)
2:30 PM	(McMurray, Dellenbaugh, Mendez)							
3:00 PM								
3:30 PM								
4:00 PM	<b>Paper Session</b> <i>Digital Instrumentality and Automation</i>	<b>Paper Session</b> <i>Reinterpreting Historical Interfaces</i> (Serbanescu-Martin, Rockwell)					<b>Workshop</b> <i>Performing Sonic and Instrumental Agencies</i> (De Luca, Armitage, Schaffer)	
4:30 PM	(Sofer, McPherson)							
5:00 PM	Coffee Break							
5:30 PM								
6:00 PM				<b>Keynote 1</b> <i>Instruments</i> Emily Dolan				
6:30 PM	Dinner Break							
7:00 PM								
7:30 PM								
8:00 PM								
8:30 PM								
9:00 PM								
9:30 PM								
10:00 PM								
10:30 PM								
11:00 PM								
11:30 PM								
						<b>Concert 1b</b> <i>Incursion</i> (Azzigotti and Adler-McKean) <i>Nuk</i> (Shin) <i>eTu(d) bje</i> (Pocius and Davis) --- BREAK --- <i>Enfant, apprenez-nous à parler</i> (Lauvray) <i>Improvisation</i> (Laprida) <i>Kagemusha</i> (Zhang) <i>Morphés</i> (Ishov and Papatrechas)	<b>Concert 1b</b> Late-night DJ sets by Harvard and Berklee music students	



# Friday, May 12<sup>th</sup>

Friday, May 12	Room 9	Room 6	Room 4	Yenching Auditorium	Holden Chapel	Paine Hall	Queen's Head Pub
8:30 AM	Coffee and Pastries						
9:00 AM							
9:30 AM	<b>Workshop</b> <i>Open-source and Networking Tools to Deploy Ephemeral Immersive Spaces</i> (Meneses and Piquet)	<b>Paper Session</b> <i>Gendered Spaces in the History of Music Technology</i> (Heldt, Smith-Biwer, Broess)	<b>Paper Session</b> <i>Materialist Organology</i> (Dekovich, Byrd, Hammel)				
10:00 AM							
10:30 AM							
11:00 AM	<b>Panel Discussion</b> <i>Music Pedagogy in the Age of Digital Media</i> (Rome, Daedelus, Egozy, Castillo)	<b>Paper Session</b> <i>Virtual Instruments and Collective Sonic (Sub)Cultures</i> (Razlogova, McNeill, Strachan)	<b>Paper Session</b> <i>Performance-based Studies of Virtuosity and Artistic Identity</i> (Nachtergaele, Coffey, Ballan)				
11:30 AM							
12:00 PM							
12:30 PM	Lunch Break						
1:00 PM							
1:30 PM							
2:00 PM	<b>Panel Discussion</b> <i>Inclusive Co-Creation in and of Online Sonic Spaces</i> (Alessandrini, Kretz, Alexandersson)	<b>Paper Session</b> <i>Historical Instruments of Music / Science</i> (Dörfling, Cannon-Brown, Burnam)	<b>Tour / Demonstration</b> <i>Harvard Collection of Historical Scientific Instruments</i> (Schechner)				
2:30 PM							
3:00 PM							
3:30 PM	<b>Paper Session</b> <i>Elemental Media as Musical Technoculture</i> (Benivoiski, Hilgren, Fairbairn)	<b>Paper Session</b> <i>Mapping Networks of Audio-Technical Discourse</i> (Doderer, McDonie, Vad)					<b>Workshop</b> <i>The "Polymorphic Instrument" in Spiropoulos's Roll... n' Roll... n' Roll</i> (Hasegawa, Tibbits, Le Bel)
4:00 PM							
4:30 PM							
5:00 PM	Coffee Break						
5:30 PM							
6:00 PM							
6:30 PM	Dinner Break						
7:00 PM							
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11:00 PM							
11:30 PM							

## Saturday, May 13<sup>th</sup>

Saturday, May 13	Room 9	Room 6	Room 4	Yenching Auditorium	Holden Chapel	Paine Hall	Queen's Head Pub
8:30 AM	Coffee and Pastries						
9:00 AM							
9:30 AM	<b>Paper Session</b> <i>Gestural Mapping and Physical Modeling with Digital Audio</i> (Ardebili, Barrett, Ducceschi)		<b>Workshop</b> <i>Accessibility, Technology, Solidarity</i> (Lyonblum, Niknafs)		<b>Workshop</b> <i>Body / Bodily Resonance</i> (seah)		
10:00 AM		<b>Paper Session</b> <i>Organs</i> (Garlid, van Keeken, Gribenski, Rahi)					
10:30 AM							
11:00 AM	<b>Paper Session</b> <i>Politics of Musical Infrastructures</i> (Börger, Vélez, House)		<b>Paper Session</b> <i>Analyzing Instrumental Affordances in Contemporary Music</i> (Kahrs, Cobb, Son)		<b>Workshop</b> <i>Live-Coding Practices</i> (Hatwick)		
11:30 AM							
12:00 PM							
12:30 PM	Lunch Break						
1:00 PM							
1:30 PM							
2:00 PM	<b>Paper Session</b> <i>Temporalities of Musical Media</i> (Just, Walch, Klauke and Ris)	<b>Paper Session</b> <i>Disability Studies and Musical Interfaces</i> (Hottle, Probst)	<b>Paper Session</b> <i>Noisy Interfaces</i> (Auer, Beaudoin)		<b>Workshop</b> <i>New Instruments</i> (Aska, Freeman, Chang)		
2:30 PM					--- BREAK --- (Alma, Sabe, Ishov and Papatrechis, Adler-McKean and Azzigotti)		
3:00 PM		<b>Paper Session</b> <i>Techno-Vocality</i> (Lucas, Mason, Bulut, Greenfield-Casas)					
3:30 PM	<b>Paper Session</b> <i>Networked Communities of Instrumental Theory and Practice</i> (Hatwick, Galloway, O'Hara)						
4:00 PM							
4:30 PM							
5:00 PM	Coffee Break						
5:30 PM							
6:00 PM				<b>Keynote 3</b> <i>Infrastructures</i> Sumanth Gopinath			
6:30 PM	Closing Reception pt. 1						
7:00 PM							
7:30 PM							
8:00 PM						<b>Concert 3a</b> <i>HYDRA System</i> (fixed media composition and improvisation by Harvard music students)	
8:30 PM							
9:00 PM	Intermission						
9:30 PM							
10:00 PM						<b>Concert 3b</b> <i>HYDRA System</i> (Tutschku, Spiropoulos)	
10:30 PM	Closing Reception pt. 2						
11:00 PM							
11:30 PM							

# Abstracts and Biographies

## THURSDAY AFTERNOON

### Laws, Patents, and Musical Notation [1:45pm – 3:15pm, Room 9]

#### Peter McMurray

"Is Beatboxing Haram? On the Interface of Mouths, Beats, and Islamic Law in the Digital Age"

#### Abstract

For over a millennium, Muslim theologians, music theorists and philosophers have debated the religious permissibility of musical activity and listening. Sometimes called "the *samā'* polemic," this debate has explored the meanings of a wide range of sonic practices, from the rhythmic poetry recited while driving camels to Beethoven, with the Qur'an serving as the ultimate standard for divinely-inspired sonic arts. In the new millennium and the expanded possibilities of digital music, a new set of practices and debates are emerging, particularly focused on the performance of *nasheed*, devotional poetry that is traditionally sung unaccompanied or with a *daf* frame drum. Such poetry can address a range of themes lyrically, from encouraging those going to war to more contemplative themes (in YouTube parlance, sometimes called "sad nasheed"), but increasingly makes use of a cappella-styled beatboxing or other vocal samples to create a rhythmic track that avoids the use of drums. In turn, Muslim clerics, especially those who actively use YouTube and other social media as platforms for broadcasting, have weighed in on the permissibility of such actions, resulting in serious theological explorations of what beatboxing is and how to understand artists like Maher Zain or the London-based Halal Beats collective. In this paper, I examine this interface of different forms of utterance: of mouths, of beats (originally with drums, and now with mouths augmented by the affordances of microphones, samplers and digital audio workstations), and of acts of legal pronouncement such as the *fatwa*. Quite often, the medium of interface for these utterances is YouTube or Facebook, creating a kind of meta-mediation that is both interactive (allowing likes, comments, and video responses) and also often siloed by online content algorithms. Drawing on the work of Eliot Bates on actor-network analyses of recording studios and Banu Şenay's

#### Biography

Peter McMurray is Associate Professor of Ethnomusicology at University of Cambridge. His work focuses on intersections of sound and Islam in contemporary and historical contexts, with particular emphasis on Turkey and its diasporas. His forthcoming book and media project, *Pathways to God: The Islamic Acoustics of Turkish Berlin*, draws on ethnography and audiovisual documentary to explore the sacred sonic practices of Muslim migrants from Turkey who have moved to Berlin since the Cold War era. He has also published extensively on oral poetry and the history of audio technologies.

work on body/instrument interfaces in Muslim sacred music, I suggest that the beatboxing debates not only add a new set of examples to the long history of *samā'* polemic, they reformat the entire debate for the digital age.

## Ginger Dellenbaugh

### “Interfaces for Specific Cases: Music Notation Patents of the USPTO”

#### Abstract

The USPTO (U.S. Patent and Trademark Office) is home to over 200 unique systems of music notation spanning more than two centuries. From notation inventions for the blind to those for specific religious practices, from systems designed to address racial difference to inscription systems for new technologies such as the player piano, the typewriter, and computers, these inventions document an ongoing, dynamic history of vernacular musicians grappling with the restrictions of standard forms of music notation.

In 2019, Floris Schuiling proposed a model for music notation that applied Actor-Network Theory (ANT) methods to understand music notation systems as "interfaces for imagining virtual music relations." Schuiling and Emily Payne (2022) elaborate on this approach by positioning music notation as a cultural phenomenon both influenced by, and influencing, the physical and social contexts of music-making. The music notation patents of the USPTO constitute a unique archive of musical experience. From the point of view of a professional musician or music pedagogue, these inventions may not seem particularly useful or even novel in comparison to standard practice. However, as a data trace of musical innovation outside the purview of formalized music education and practice, each invention reveals a unique understanding of music writing, as well as whom and what notation should serve and represent.

In this paper, I will leverage the concept of music notation as an interface to position these patents as time-specific documents tethered to organological developments, historical events, and social contexts. Using Charles Sanders Peirce's theory of signs as a framework, I will explore how differences in these symbol systems manifest particular concepts about the purposes and uses of music writing. Each symbol system embodies a distinct mode of knowledge, an interface that negotiates between institutionally established standards and extra-

#### Biography

Ginger Dellenbaugh is a music historian who has taught and written about music and politics, cultural techniques of the human voice, and vernacular notation systems. She holds a B.Mus. in Vocal Performance from Vanderbilt University and an M.A. in Liberal Studies from The New School for Social Research. For over a decade, Ginger performed classical and contemporary repertoire in Europe and the United States. Her recent book, *Maria Callas's Lyric and Coloratura Arias* (Bloomsbury, 2021), uses this 1954 album as a lens to examine various aspects of cultural commodification of the feminized voice in both classical and pop culture. Her writing has appeared in, among others, *Oxford American* and *Public Seminar*. In 2022, Ginger co-founded an AMS Study Group dedicated to the study of music notation, inscription

institutional factors, revealing a diverse, as yet unaddressed, history of music making and innovation in the United States.

and visualization. She is currently a doctoral candidate in music history at Yale University completing a dissertation on music notation patents of the USPTO.

## **Matthew Mendez**

### **“Fiduciary Media: On Music’s Contractual Organologies”**

#### **Abstract**

Recent years have seen a turn to the study of bureaucracy, markets, and organizations in German-speaking media scholarship (e.g., Beyes and Pias 2019; Schröter 2018; Vogl 2010). One of the distinctive features of this literature is its dissatisfaction with the perceived overemphasis on materiality in previous iterations of media study. While remaining committed to the thesis that techniques are generative of epistemic distinctions (Siegert 2015), these authors revisit some of the classic problems of qualitative sociology, such as institutional maintenance and disrepair, and the collective production of credit, belief, and solidarity.

This talk brings some of these perspectives to bear on music studies, aiming to complement the discipline’s recent emphasis on instruments and organologies with consideration of the logistical-organizational form that so often grounds the very practices associated with those organologies—namely, the “legal instruments” that are “contractual media.” Although performance and recording contracts have been the objects of scrutiny in industry-oriented popular music studies (e.g., Stahl 2013), they have received less attention from musicologists, who have tended to treat them as historiographic sources, rather than objects of methodological interest as such. But what kinds of materialities of communication are contracts (Suchman 2003)? What sorts of infrastructures for communication do contracts afford?

Examining early phonograph contracts and advertisements in which recording artists were said to have “entrusted” their auditory reputations to their record companies, this talk suggests one possible answer to those questions—that attention to contractual instruments necessitates a reconsideration of “sound fidelity,” the bad object par excellence for

#### **Biography**

Matt Mendez is a PhD candidate in music history at Yale University, where he is also a Graduate Certificate student in the Film and Media Studies Program. He is currently completing a sound studies dissertation on the juridical idea that we each have “a right to the sound of our own voice,” and of the corollary legal claim that the distinctive sonorities of each of our voices are a kind of “property,” the use of which by others, it is said, ought to be subject to our partial, or even exclusive, consent and control. Matt was the winner of the Society for American Music’s 2023 Mark Tucker Award for his paper “Haunted House Blues: Bessie Smith, Vocal Possessions, and the Time of Redress.” His article, “History Beyond Recovery: Julius Eastman and the Challenge of the Heterological,” is

sound media scholarship for decades (e.g., Sterne 2003). Approaching “fidelity” as underwritten by contractual media instead attunes us to the term’s etymological roots in the ancient Latin *fides*, a word whose semantic resonances encompass “good faith,” “credit,” and, indeed, “belief.” To what extent might sound reproduction then be understood as a fiduciary medium, one that implicates relationships of trust and confidence, of loyalty and a quasi-judicial “duty of care”? Insofar as musical performance and the circulation of sonic commodities are underwritten by “contractual solidarity” (Durkheim 1893), that has largely been a function of notarized documents and (today) blockchain smart contracts.

forthcoming in the *Journal of the American Musicological Society* in 2024.

## Transhistorical / Intercultural Soundscapes [1:45pm – 3:45pm, Room 6]

### Fanyi Faye Ma

“Listening to 静: Political Affect and Remembrance in 2022 Shanghai Covid Lockdown”

#### Abstract

On March 31, 2022, the city of Shanghai was placed under lockdown in accordance with China’s “zero-covid” policy after its old test-and-trace measures failed to contain an escalating outbreak. The latest euphemism for lockdown coined by the municipal government, in Chinese “全域静态管理” (whole area static management), or “静默期” (period of silence) for short, revolved around the character “静” (jing). Literally meaning static, quiet, or calm, the use of 静 implied a shift from mere spatial restrictions on border-crossing movements to a more holistic regulation shushing all kinetic and emotive activities. Amid the months-long humanitarian crisis caused by authoritarian excess and bureaucratic blunders, residents of Shanghai staged numerous protests. Not surprisingly, almost all voicing of discontent was immediately suppressed and censored as soon as its documentation was circulated online. Chinese internet users were left with only silent digital remains of a near audible revolution.

How does authoritarian sonic dominance in urban environments translate into visual design in digital interfaces? What are the sensorial, affective, social, and political potencies of digitally-circulated sound acts

#### Biography

Fanyi Faye Ma is a second-year Ph.D. student in ethnomusicology whose interests include Sinophone, postcolonial, diaspora, and Asian/Asian American Studies; music and performance in transnational and global China; and religion and vernacular performative practices. She has written about Chinese music ensembles, formation of Asian Americas, and neoliberal multiculturalism in US universities. Her recent work focuses on the different forms of civil defiance in the mediated, censored world of post-socialist China; and

in the age of physical isolation? When human bodies are immobilized and anonymized, human voices silenced, and audio-visual contents made ephemeral, how are the physical and digital infrastructures transformed into new sites of creative manipulation as strategies of remembrance and protest? This paper responds to these questions by zooming into two media objects: a video of a “balcony karaoke” in a locked-down housing compound, and “Voices of April,” an audio montage of Shanghai residents’ cries for help. Through close listening and ethnographic fieldwork, I show how sociality and publicness was rerouted through networked sonic intimacy. Examining the circulation, preservation, and creative adaptation of these two videos, I show how public secrecy (Hillenbrand 2020) is displayed and satirized through performative use of sound technologies and intentional aestheticization of gridded surfaces/interfaces of urban landscape, architectures, and digital platforms. Tracing the political affect and folk archiving efforts of Chinese internet users during Shanghai covid lockdown, this paper follows Eugenie Brinkema’s reformulation of silence as “intensity in suspension” (2011) and proposes ways of listening to silence in a censored, mediated world.

Disney costumed characters and fans’ imaginations of enchantment and disenchantment, labor and pleasure in neoliberal China. Faye grew up in Shanghai, China and previously earned a B.A. from Swarthmore College, where she studied Asian Studies, Music, and Religion.

## **Winnie W.C. Lai**

### “Soundwalking Hong Kong, Now and Then: Infrastructural Acoustic vs Counter-infrastructural Acoustics”

#### **Abstract**

Infrastructures reveal forms of political rationality that underlie technological projects and give rise to an apparatus of governmentality. In sensing, “listening in” (Fahmy 2020), and “listening to listening” (Eidsheim 2018) to the city, the urban “acoustic habitus” (Feld 1982) emerges out of the city’s governmentality; it contains ways of listening that define a biopolitical form of “sonic citizenship” (Western 2021). Governance limits one’s *acoustic being* in urban spaces, crafting an aural monopoly which I call the *infrastructural acoustic*. In this context, a wave of counter-acoustics emerged from 2003 to 2019 in Hong Kong’s Street space. The clamor spanning from raging roars to unintelligible sounds in public spaces cast the city’s atmosphere as an affective entanglement of air and bodies during upheavals in the city’s bygone “semi-democratic” spaces. Indeed, call-and response slogans, amplified political speech, protest music, and random sounds that once sounded all manifest the encounter of a “presentness” entangled with the effects of the city’s infrastructure. Insisting on the significance of

#### **Biography**

Winnie W. C. Lai (she/her) is a PhD candidate in Music, (specializing in (ethno)musicology and sound studies), a Benjamin Franklin Fellow (2018-2022, 2023-2024), a Tarnopol Graduate Fellow (2020-2021), and a Price Lab Andrew W. Mellon Mid-doctoral Fellow in Digital Humanities (2022-2023) at the University of Pennsylvania, currently based in Philadelphia, U.S.A. and Hong Kong. Her works

sound and listening in making sense of the “presentness” in social uproars, the virtual tour and paper study the materiality of the political through air and sound to discuss the forces and attunements in sensing the dynamics between sounds and infrastructural matter in protest spheres, and the possibilities of the *counter infrastructural acoustics* before and after the enforcement of National Security Law (Hong Kong). Field recordings of the (muted) acoustics in Hong Kong’s street spaces and monologues recorded by Hongkongers are used to study the transforming acoustics. Through “listening in,” participants virtually soundwalk the juxtaposition of Hong Kong’s “now” and “then,” an experience shared by many Hongkongers through remembering the collective action in the bygone protest spaces while performing quotidian practices and being muted at present.

mainly focus on but are not limited to sonic activism, urban sound, the theoretical juncture of the sonic, listening, space, and bodies, sound studies, performance studies, political theories, and matters of Hong Kong. Winnie experiments with inter-medial methods and field materials to craft out spaces for sensory experience. She is currently working on her dissertation entitled “Sounding Freedom: Political Aurality and Sound Acts in Hong Kong (Post-)Protest Spaces” under the supervision of Professor Jairo Moreno.

## **Ravi Krishnaswami**

### “Sympathetic Strings: The Sitar in the Western Imagination”

#### **Abstract**

The arrival of Hindustani music in the west, and the sitar’s prime location within the western audiovisual imaginary, is popularly explained by a “great man” theory that centers the life and collaborations of Ravi Shankar, and his mentorship of The Beatles’ George Harrison. But what material role does the instrument itself play in the emergence of cultural dialogue, appropriation, and exchange? Rock music historians have rightly critiqued western appropriations of Hindustani musical instruments as prototypical examples of orientalism (Said 1978). In this paper I argue that the sitar plays a central role in the western imaginary because rock musicians believe it functions like the electric guitar, but is clearly marked as its exotic counterpart.

As interfaces, both sitar and electric guitar have a history of undergoing modifications in the service of unlocking deeper sonic territory and personal expression. Musical instruments are both cultural symbols and practical technical objects, and, as such, can be better socially

#### **Biography**

Ravi Krishnaswami is a PHD student at Brown University studying how technology, business, and culture intersect in the work of creating music for advertising. He is an award-winning composer and sound-designer for advertising, television, and games, a business owner, and guitarist in NYC’s tribute to The Smiths. His composition work has appeared in the Super Bowl, on networks including ESPN



contextualized by applying methods developed within the discipline of science and technology studies and its notion of the social construction of technology. Technologies and users construct each other within “sociotechnical ensembles.” Thor Magnusson has used the term *ergodynamics* “to denote the latent potential for expression in instruments and the unique relationship performers have with them: instruments present subjective scope [sic] of resistance and possibilities, yet there are objective properties at play that can be discovered.” (Magnusson 2021).

Magnusson’s notion of “resistance and possibility” describes the practical ease with which rock musicians have interacted with the sitar, and the aesthetics and discourse of both the sitar and electric guitar. The sitar offers guitar players the possibility of deeper bends and more resonant sustains, while resisting assimilation. Attempts to merge the sitar with guitar technology have demonstrated how an instrument can remain an aesthetic idea that transcends wood and wire, a collection of gestures and timbres that have come to represent South Asian. To understand what India means in the western musical imaginary, we must look at the sitar’s travels into western hands, studios, and imaginations.

## Luke Riedlinger

### “Disrupting Orchestral-ness in Ornette Coleman’s *Skies of America*”

#### Abstract

Ornette Coleman recorded his first orchestral composition, *Skies of America*, for jazz quartet and symphony orchestra, in April 1972 with David Measham and the London Symphony Orchestra (LSO). Music critic Richard Williams attended the recording session and described the collaborative atmosphere as discordant and uncomfortable, with several musicians in the orchestra complaining about ‘un-idiomatic’ passages in Coleman’s orchestration. This paper problematizes the LSO’s unusually strong reaction to Coleman’s piece, given that the ensemble regularly performed works in a variety of different experimental styles. I suggest that this collaboration elicited a clash between different philosophies of sound, rooted in the crossover between classical and jazz genre spheres; specifically, conflicting aesthetic presumptions about what it means to sound ‘good’ both as individual instruments, and as a socialized, instrumentalized collective. Zachary Wallmark describes the social agency and divisive potential of sound as an “ethics of timbre” whereby sounds stratify vibrating bodies, connecting individuals to

and HBO, and in AAA video game soundtracks such as *Fallout* and *Dishonored*. He studies sitar with Srinivas Reddy, and recently premiered works for acoustic instruments and live processing, under the supervision of Lu Wang and Butch Rován.

#### Biography

Luke Riedlinger is a PhD student in Musicology at McGill University. His research focuses on jazz historiography, particularly discourses of jazz as a popular music, and strategies for illuminating and disrupting the racialized and gendered hegemonies embedded in the jazz canon. His recent work looks at the late recordings and disbandment of the John Coltrane Classic Quartet, detailing how different

groups according to various unities and oppositions (Wallmark 2016). Coleman and the LSO held conflicting intuitions and aesthetic preconceptions about what it should feel like to be implicated in timbre, or rather, to *do timbre* together. On one hand, the orchestra operated within a normative Eurological, western-classical aesthetic, rooted in everyone maintaining a hierarchy of focused, homogenous, individual sounds. On the other hand, Coleman's *Skies of America* orchestration typified his own Afrological, Harmolodic, timbral aesthetics, in which timbre is experiential and democratic playing on the inherent multiplicity of sounds contained within every sound, and the feelings of sounding togetherness. Coleman explained to Williams that, "It's not meant to be a symphony orchestra playing ... Not that particular sound. It's just supposed to be the way these instruments sound when they play together" (Williams 2022). Coleman's approach to orchestration enriches our understanding of how the symphony orchestra has been conceived as an instrumental unit that is paradoxically both heterogenous and homogenous, multiple sounds but also a coherent sound. His collaboration with the LSO exemplifies how a symphony orchestra can adapt to, but also resist, certain ideas about playing (sounding) together that stem from outside the Western classical tradition.

bandmembers understood their evolving membership of the ensemble during this turbulent period through a shared concept of masculinity.

## **Workshop: Networked Modular Performance [1:45pm – 3:15pm, Holden Chapel]**

### **Matthew Davidson and the Berklee Networked Modular Ensemble**

#### **Abstract**

This electronic music workshop focuses on the role of networked communication protocols for performing and improvising with modular synthesizers in an ensemble. Historically, modular synthesizers were only accessible to rich and famous musicians or universities due to their high cost. However, with the development of the smaller, cheaper eurorack format, it became possible to build multiple identical systems for classroom use. At Berklee College of Music, the Electronic Production and Design department has established a sound synthesis lab equipped with seven identical modular synthesizers, each with a MOTU AVB interface that provides the ability to share audio and control signals over a low latency digital audio network.

#### **Biography**

Matthew Davidson is an Associate Professor in the Electronic Production and Design (EPD) department at Berklee College of Music in Boston Massachusetts. As the course coordinator for the sound synthesis curriculum, Matthew is responsible for shaping the future generation of music producers and designers.

Working with modular synthesizers emphasizes a hands-on approach to synthesis, with performers working with their hands using patch cables and dedicated knobs to produce sound with physical gestures. Unlike traditional ensembles, there are no pre-assigned roles, and any performer can alter the output level, change the tempo, or take control of the pitch and harmony of the ensemble. The result is a highly democratic and collaborative approach to music creation, with the advantage of a shared harmonic framework that can be determined on the fly.

Performing with modular synthesizers presents some unique challenges, such as the time-consuming process of patching and the lack of gestures that the audience inherently understands. This workshop will cover some of the tools and techniques to overcome these limitations and create compelling musical performances.

With over 20 years of experience, he has established himself as a sound designer and musical instrument consultant, working with renowned brands such as MOTU, Ableton, Cycling 74, and Univers Sons. Matthew's contributions to the music industry are significant, as he is the creator and primary author of BEAP, the music synthesis tool used at Berklee. He is also known for developing several applications for the monome, an open-source music controller. Matthew's musical works have been featured on nationally-syndicated shows like 'Echos' and 'Hearts of Space', as well as on National Public Radio (NPR), Public Radio International (PRI), and satellite radio. Aside from his academic career, Matthew has also released numerous albums and sample libraries.

## **Digital Instrumentality and Automation [3:30pm – 5:00pm, Room 9]**

### **Daniele Shlomit Sofer**

“Reason and Measurement in Automated Music Analysis”

#### **Abstract**

Many of music's technologies began with other intended applications. The hand-cranked, grooved metal cylinder and stylus employed to

#### **Biography**

Dr. Daniele Shlomit Sofer (they/them) is Assistant

produce sound in Edison's early phonograph was inspired by myograph instruments used in science and medicine. The phonograph's predecessor, the kymograph was first used to cut into the physical body of animals to measure the heart rate, blood flow, and other functions of life (Mundy 2018). Nineteenth-century psychiatrists used acceleromyographs in human trials to monitor heart rates, physical convulsions, and vocal amplitude in sexually aroused women to diagnose the now largely dismissed malady of hysteria (Lomas 2012; Sofer 2018). Ethnomusicologists, too, employed tools like the HP6A tone arm and magnetic pickup from Harvard's Collection of Historical Scientific Instruments (CHSI) to capture evidence of sounds made by Indigenous populations and otherwise ethnically and socially foreign musical phenomena. Just as vivisection—cutting into the physical bodies of animals—made scientists feel closer to finding the meaning and source of life, the graphic trace employed in human trials and later in music presented a semblance of reality more believable than human observation alone.

Presenting an overview of historical instruments such as the kymograph, acceleromyograph, and the HP6A, this paper tracks a parallel history of electronically distilled graphics in both medicine and music. The paper identifies sexual pathology and scientific racism as predecessors to today's computational analysis of music and sound in such wide-reaching applications as algorithmic optimization and recommender systems for streaming services, Voice Spectrogram Analysis employed by the Department of Justice (Lorenzen 1980), and in the robot-assisted acoustic measurement performed by first responders (Martinsson 2022). Like the early instruments of science and medicine, law enforcement, government agencies, and corporations employ automating tools to quantify sonic and physical aspects as proof for more abstract phenomena like emotion, sensation, and sonic perception. The talk illuminates leaps in logic between the measurement and the interpretation of scientific data to show how historical assumptions about the validity of measurement come at the expense of critical evaluation and ethical transparency in automated musical applications.

Professor of Music Theory and Music Technology at the University of Dayton and co-founder of the LGBTQ+ Music Study Group. As a researcher, they examine various means of making music with electronic mediation through a lens of gender, sexuality, and race. Their monograph on this subject, *Sex Sounds: Vectors of Difference in Electronic Music*, was published by MIT Press in 2022. They earned a BA in music performance and honors at New Paltz, and completed degrees at two other SUNY schools, as well as a PhD in musicology at Kunstuniversität Graz in Austria. Their current research investigates how musical technologies inherit and express racial and gendered biases.

## Andrew McPherson

### "Digital Musical Instrument Design as Critical Engineering Practice"

#### Abstract

Musical instruments carry many identities, depending on one's disciplinary perspective: an instrument acts as transducer from action to sound, as extension of the mind and body, and as product (and co-producer) of a cultural environment. There might exist a temptation to organise these views as progressive stages of enlightenment, widening the lens from mere technical objects to prostheses to broadly-defined "contexts for musicking" (Waters, 2021; Small, 1998). However, where design is a co-equal goal with analysis, the loop must be closed such that ecological insights inform future technical practice.

Every technology contains inscribed values, obvious and subtle (Akrich, 1992). Sensitive and entrepreneurial engineers have long shaped electronic music, from Robert Moog (Pinch and Trocco, 2004) to Roger Linn (Morrison, 2022) to Miller Puckette and David Zicarelli (Snape and Born, 2022) to name just a few. MIDI, codified by an industrial consortium reflecting computational constraints of the 1980's, continues to exert global influence through ideology imported from the piano keyboard (Diduck, 2018; Dolan, 2012). Meanwhile, academic research in instrument design grapples with tensions between scientific roots (Gurevich, 2016; Born, 2022) and emergent epistemological and political issues (Hayes and Marquez-Borbon, 2020; Morreale et al., 2020), while struggling with uptake and longevity of new instruments (Morreale and McPherson, 2017).

This talk asks how engineering and design should best participate in the emerging anthropological and ecological discourse around instruments. What, ultimately, should a critically-engaged designer do differently? I propose that instruments should not be viewed as self-contained objects at all, but as entanglements, complex and irreducible webs of relationships between humans and things (Frauenberger, 2019; Waters, 2021). What is then needed is a theory of entanglement design, a situated techno-cultural practice that uses engineering as one tool amongst many to create and perturb entanglements without uncritically adopting a scientific logic that aspires to objectivity through careful isolation.

The talk will present early work on RUDIMENTS, a recently commenced 5-year ERC/UKRI- funded project. I will discuss case studies of value

#### Biography

Andrew McPherson is a musical instrument designer, composer, engineer and viola player. He is Chair (Professor) in Design Engineering and Music in the Dyson School of Design Engineering at Imperial College London. He leads the Augmented Instruments Laboratory, a research team investigating new musical instruments, performer-instrument interaction, embedded hardware systems, and the cultural implications of technology. His digital and augmented instruments are widely used by performers; for example, the magnetic resonator piano, an augmented acoustic piano, has been used in over 30 compositions, several commercial albums and a major film score. His research has led to two spinout companies following successful crowdfunding campaigns, including Bela, an open-source embedded hardware platform for creating rich and responsive interactive audio systems. He holds an ERC Consolidator Grant and a Senior Research

discovery in existing music technologies (Lepri and McPherson, 2022), and I hope to start a conversation on how we might gain foresight into the cultural implications of future engineering decisions.

Fellowship from the Royal Academy of Engineering.

## **Workshop: Performing Sonic and Instrumental Agencies [3:30pm – 5:00pm, Holden Chapel]**

### **Erik DeLuca**

#### **“Dispossessed Sound”**

##### **Abstract**

Just like land and bodies—sound and music is dispossessed. To put out of possession or occupancy, dispossession belongs to an active human reality of losing. (Fraleay 2017, 518) With the arrangement of nation-states, the possession and ownership of property in settler colonies cues up onto-epistemological paths involving “economic, cultural, political, and psychic spheres of colonial and postcolonial life.” (Bhandar 2018, 4). Acts of dispossession are facilitated by imperial technologies that mediate and organize. Within the context of mechanical reproduction, Ariella Aïsha Azoulay writes, “the thrust-forward rhythm of the click of the camera’s shutter acts like a verdict—a very limited portion of information is captured, framed, and made appropriable by those who become its rights holders. (Azoulay 2019, xvi) Similarly, the imperial sound shutter’s ability to capture and dispossess vibrations from a source into mediums of wax, magnetic tape, and computer is a “field of power through which colonial relations are produced and maintained.” (Coulthard 2014, 17) For example, the Indigenous songs dispossessed by white settlers are still owned, and listened to by non-indigenous government institutions under the guise of “inheritance”. (Robinson 2020, 156) These severed Indigenous songs are stored in vaults while sound in the U.S. National Parks (NPS) resounds and accumulates on dispossessed land. Within specific resource management aims guided by Heidegger’s violent hunger for purity, and primordiality (aka wilderness as a possessive investment in whiteness), the NPS uses remote acoustic monitoring systems to quantify the distinction between natural or unnatural (the latter often defined as human-produced). From this data collection the NPS enacts laws that facilitate dispossessed soundscapes, on dispossessed land, using an imperial technology, the sound shutter. Dispossessed sounds are abundant (violent appropriations in soundcloud

##### **Biography**

Erik DeLuca (born Tampa, FL 1985; German—through restitution law Article 116) is an artist and musician working with performance, sculpture, and text, in dialogue with social practice and critique. Recently, his projects have been included at Braunschweig University of Art, Kling og Bang (Iceland), Sweet Pass Sculpture Park, MASS MoCA, Bemis Center for Contemporary Arts, and Fieldwork: Marfa. His writing is published in *Public Art Dialogue*, *Mousse*, *Third Text* and *The Wire*. He received a PhD in Music from the University of Virginia (2016), was a resident at Skowhegan School for Painting and Sculpture (2017), and was an Asian Cultural Council Fellow in Myanmar (2018). He lectured at the Iceland University of the Arts (2016-

rap, oppressive music copyright laws, and quotidian soundscapes in Palestine). What needs to happen for these sounds to be restituted?

For the Instruments, Interfaces, Infrastructures: An Interdisciplinary Conference on Musical Media I propose to explore this topic through a guided listening session. While inheriting the mutations of colonialism and slavery, I personally have benefited from the restitution of dispossessed citizenship from the Holocaust. To de-knot these orientations, I have to recognize their mutations in my roots.

## **Jack Armitage**

### **“Agentology for Organology: Cyber-, Bio-, and Ecosemiotic Perspectives on Instrumental Agency”**

#### **Abstract**

Magnusson in 2017 proposed a philosophy of organology based on heterarchical categorisation of musical instruments, hybridising older organologies with domain specific and ad-hoc micro-taxonomies, as needed. Instruments are now emerging whose design, behaviour and music is entangled with artificial intelligence, machine learning and data science. Correspondingly, a need is arising for new organological tools that decode, dissect and demystify these instruments. How can we begin to understand them and their musicological impact, and are these instruments in turn impacting sociotechnical discourse? Following Sharov and Tønnessen (2021), we propose agentology as an ad-hoc taxonomy for organological consideration of new agential and intelligent instruments, and also contemporary and historical instruments. Philosophers such as Latour and Barad, through to biologists like Maturana and Varela or Levin, to cognitive scientists like di Paolo or Froese, offer us a cornucopia of accounts of agency. Further, cyber-, bio, and ecosemiotics provide perspectives and tools that could be well suited for instruments which are starting to behave more like cells and animals than inert objects.

To put these theoretical perspectives to the test, I will draw on my own experiences as a practice-based researcher-designer-player of new instruments, and that of my research colleagues, testers and musical collaborators. I will describe our nascent methodology based on encounters between musicians and agential instruments, and how as researchers we are delicately probing at the technological, phenomenological and sociological edges of music. I will also present

2018), was Visiting Assistant Professor of Music at Brown University, and a critic at Rhode Island School of Design. Erik is Associate Professor of Art Education and Contemporary Art Practice at Massachusetts College of Art and Design.

#### **Biography**

Jack Armitage is a Postdoctoral Research Fellow at the Intelligent Instruments Lab, Iceland University of the Arts, working with Prof Thor Magnusson on artificially intelligent musical instruments. He has a doctorate in Media and Arts Technologies from Queen Mary University of London, where he studied in Prof. Andrew McPherson's Augmented Instruments Lab. During his PhD he was a Visiting Scholar at Georgia Tech under Prof. Jason Freeman. Before then, he was a Research Engineer at ROLI after graduating with a BSc in Music, Multimedia & Electronics from the University of Leeds. His research interests are centred around musical instruments, investigating

highlights of and grounded reflections on one and a half years of local community building around the inclusive exploration of intelligent musical instruments in Iceland.

them from the perspectives of embodied interaction, craft practice and design cognition. He also produces, performs and live codes music as Lil Data, as part of the PC Music record label.

## **Max Schaffer**

“lulu10tacles: diving to the dark depths of monstrous embodiments in the post-internet”

### **Abstract**

Performing live via real-time motion capture with/as my collaborator/avatar lulu10tacles—a Vocaloid artist and synthetic being. We’ll discuss & demonstrate current practices of digital trans embodiment & vocal modulation in digital communities. In exploring practices in which the separation between self & other are fractured, we’ll investigate what methods can be deployed in the always-online world to realize trans futurist politics in the present. Placing topics of race, gender, and capital at the center of discourse regarding digital curation and space-making—we’ll trace threads of musical ancestry that show digital curation as a crucial technology of survival across time & space.

Virtual manifestations can act as powerful lenses through which to reconceptualize relations to one’s own body—renegotiating boundaries of the self in both beautifully profound and deeply discomfiting ways. Hopefully, by the end of the keynote/performance, attendees will not only have gained a more in depth understanding of digital communities and technologies of embodiment—but will understand the basic skills and processes through which they can explore these spaces themselves, as well as curate their own digital forms in performance.

### **Biography**

Max Schaffer (they/she) usually just writes “transfemme bxtch seeks meaning.” However, for the sake of “professionalism”—Max is an artist & researcher at the intersections of Music, Technology, & Gender Studies. Their work focuses on digital bodies & voices—specifically regarding transness & relationships between the individual/collective. You may encounter “them” in two other forms—a performance entity/ producer named Saint Taint as well as a virtual being/ avatar named lulu10tacles. Max is currently a 3rd year PhD candidate at the UC San Diego dept. of Music, and previously completed their BA in History & Gender Studies from Harvard College.



## Reinterpreting Historical Interfaces [4:00pm – 5:00pm, Room 6]

### Theodora Serbanescu-Martin

#### “Henri Herz’s Dactylion & the Prosthetics of Nineteenth-Century Pianism”

##### Abstract

This paper presents the findings of a creative research project that involves rebuilding Henri Herz’s 1836 dactylion — a device that Herz created in order to help aspiring virtuosi to improve their finger interdependence and to magnify their keyboard strength. Following archival research at the Musée de la musique, where the object is currently housed, I present my reconstruction of this one-of-a-kind pianistic item together with data following my two-month practice with it on nineteenth-century keyboards from Cornell’s Center for Historical Keyboards, including two Pleyels, a Graf, as well as a Steinway.

The first part of the paper details the original object’s history as well as the process of replicating this nineteenth-century oddity that captures an idiosyncratic interface-relation between hands and keys, and that actively showcases the disciplinary microcosm of Romantic virtuosity. I take a media archaeological approach in understanding the meaning of this “prosthetic” pianistic object in history, especially its persisting presence in both original and reconstructed form today, by asking questions such as: how does its purported promotion of finger interdependence define one Romantic understanding of the pianistic body, specifically, the hand as a whole vs. the individual fingers? How does the object’s main aim — to discipline fingers — speak about the role of instruments, which is to shape both bodies and sound, and what does this particular object suggest about the mediality of nineteenth-century pianistic virtuosity and its reliance on emerging technologies? And finally, what does a project such as reconstructing a unique instrument of musical discipline mean from an ecomusicological perspective, as well as from a historically informed one? Is — and should — a markedly historic interface-relation between instrument, prosthesis, and body (be) recoverable? The second part of the paper details my experience practicing exercises and works from nineteenth-century virtuosi of different schools at the time such as Herz, Wieck, Kalkbrenner, Thalberg, Liszt, Tausig, and Chopin for two months, and presenting data that draws some theoretical conclusions about the dactylion’s transformative potential (or failure) to shape modern fingers

##### Biography

Theodora is a PhD candidate in Musicology at Cornell University and a pianist. Her recent work includes co-curating the exhibition “Sounding Fashion” at Cornell, whose rationale was that “fashion resonates,” as well as finishing her dissertation, which traces the Romantic intersection between metaphysics and materiality via five case studies of nineteenth-century pianism and their synthesis of music, literature, and fashion. The forthcoming dissertation website includes recordings, videos, and other media that present virtuosic repertoire and reconstructions of objects such as Herz’s 1836 dactylion and a dress Clara Schumann wore. As a pianist, Theodora has performed internationally and won numerous awards including Third Prize at the the 12th International Liszt Competition, and within musicology, she has presented at conferences such as AMS 2020, and has organized the conference-festival “Performing Clara

that play old keyboards. I end by discussing what other projects such as this might suggest about “new” organology studies.

Schumann” at Cornell in 2019. Outside of the nineteenth century, her interdisciplinary research interests extend to German and French literature, pop studies, and ancient astrology.

## **Joti Rockwell**

### “Plucked on Bach: Studying the Instrumental Idioms of the BMG Family”

#### **Abstract**

What does it mean to say that certain music is “idiomatic” for a particular instrument? This project approaches the question with respect to the BMG (banjo, mandolin, guitar) family of plucked-string instruments, which took shape in America in the early twentieth century. The project involves performing Bach’s twelve solo string suites on a combination of mandolin, mandola, mandocello, steel-string guitar, banjo, and pedal steel guitar over a series of six concerts between fall 2021 and spring 2023. Carl Philipp Emanuel Bach said that his father “understood to perfection the possibilities of all stringed instruments,” and Anna Magdalena’s manuscript of the cello suites includes multiple tunings as well as one indication for five rather than four strings. What is the theoretical potential of voicing this music, which is in some ways unidiomatic for violin/cello and has an extensive precedent for reinterpretation, with the BMG family?

In this paper, I report on the process of translating the Bach violin and cello suites for, and playing them with, BMG instruments. The presentation will include analysis of recorded and notated musical examples, as well as some live demonstration on mandola. The work sheds light on the translatability and “idiomaticity” (De Souza 2017) of Bach’s music, which in addition to synthesis (Carlos 1968), lends itself to revoicings among sung, bowed, and plucked means of musical production. I give particular attention to the pedal steel guitar, one example of which was built specifically for the project as a method of exploring gestural components of continuous polyphonic motion. A historically neglected member of the BMG family, the slide guitar is notable for how its idiomatic possibilities have changed alongside its development into the contemporary pedal steel. Ultimately, the work

#### **Biography**

Joti Rockwell is an Associate Professor of Music at Pomona College. He is a multi-instrumentalist and active performer of roots music, rock, bluegrass, and classical concert music. He has recorded professionally and toured extensively across the United States, playing guitar, keyboard, theremin, mandolin, pedal steel, and related stringed instruments. He has taught courses on music theory, American popular music, music and mathematics, and rhythm, and he is a previous recipient of Pomona College’s Wig Distinguished Professor Award for Excellence in Teaching. His scholarly work has centered around music theory and American roots music, and his writing has appeared in publications including *Journal of Music Theory*, *Ethnomusicology*, *Po*

referenced in this paper points toward a theory in which, more than providing maps of spatial positions, musical instruments partner with their performers to create lexicons of movement.

pular Music, and Analytical Approaches to World Music. He also performs in and coordinates Pomona College's Balinese gamelan ensemble, Giri Kusuma.

## **KEYNOTE 1: Instruments [5:30pm – 6:30pm, Yenching Auditorium]**

### **Emily Dolan**

#### **"On the Edges of Technology"**

##### **Abstract**

Musicology's recent material and mediatic obsessions have turned scholars' attentions towards the many things that make musical culture possible. Objects proliferate in music studies today: the field embraces everything from Wagnerian steam engines, unruly synthesizers, and magnetic tape, to automata, music boxes, and shellac. Part of the appeal of studying a particular musical technology has been the conceptual solidity it promises: it seemingly serves as a kind of archive of a particular soundworld. It is an access point to a past listening culture, bound to a particular time and place, and one that reveals and unmasks hidden sonic values and laboring bodies. But the influx of all of these objects raises fresh questions: how is it that for so long we have been able to listen past our material reality? Is the study of instruments and technology necessarily a corrective to a more idealized understanding of music? As much as music scholars might try to use instruments to counteract music's abstract and incorporeal tendencies, instruments themselves are often idealized, functioning as objects of the imagination. This talk turns to the history of what is arguably one of the first digital instruments to think about the boundaries between the material and the immaterial.

##### **Biography**

Emily I. Dolan is Associate Professor of Music at Brown University. Dolan works on the music of the late eighteenth and nineteenth centuries, focusing on issues of orchestration, timbre, aesthetics, and instrumentality. She is the author of *The Orchestral Revolution: Haydn and the Technologies of Timbre* (Cambridge University Press, 2013). She has published articles and essays in *Current Musicology*, *Eighteenth-Century Music*, *Studia Musicologica*, *Keyboard Perspectives*, *Representation*, and *19th-Century Music*. In 2018, she guest edited a double issue of *Opera Quarterly* entitled "Vocal Organologies and Philologies." With Alexander

Rehding, Dolan co-edited *The Oxford Handbook of Timbre* (2021) and is completing her second book, *Instruments and Order*.

## THURSDAY EVENING

### Concert 1a: Holden Chapel, 8:00pm – 10:30pm

#### Luciano Azzigotti and Jack Adler-McKean

*Incursion* (2023) for tuba and electroacoustic resonators

##### Program Note

Resonances in brass instruments are created not through blowing streams of air through the instrument as might be logically inferred, but rather using an air stream to vibrate the lips, which in turn resonate the air already present in the instrument, resonances which then radiate outwards via the bell. In *Incursion*, a work for solo extended tuba, a feedback loop system provides an additional source of resonance for the air contained within the instrument, which, given the fact that it does not rely on use of the lips, can radiate outwards via both the bell and the mouthpiece.

Following a long-term collaboration between composer Luciano Azzigotti, and tubist Jack Adler-McKean, the piece forms an initial artistic realization of the development of two microphone-based sonic interventions. A piezo-electric microphone is connected to a modified fourth valve slide, which is connected to an amplification pedal, and outputted to a loudspeaker which is suspended inside the bell by means of a 3D printed mount. By depressing the fourth valve and opening the connected valve chamber, it can therefore create a feedback loop resonating inside the valve loop itself.

Furthermore, the third valve slide of the tube is removed, and thus when this valve is depressed, this open valve loop acts as a second 'bell', the output of which is balanced with the closed loop resonances

##### Biographies

The work of the Swiss-based Argentinian composer Luciano Azzigotti is characterized by the invention of systems where a specific type of relationship between instruments, beings and the environment can collide. He was awarded the Juan Carlos Paz Composition National Prize 2017, and has received commissions and awards from Fondo Nacional de las Artes, Ministry of Culture Argentina, Centro Cultural de España, Art Mentor Lucerne, Cultural Promotion Council Buenos Aires, CALQ, Fundación Telefónica, Melos/Gandini, and Colon Theatre. He is currently teaching Multimedia Composition at

through means of condenser microphone placed close to the outlet chamber of the valve. This combination of multi-directional, simultaneous modes of oscillation leads to acoustic interactions and collisions, allowing one to speculate on possibilities of hybridisation as a certain distributed cognition of the principle of operation. By treating brass instrument valves as continuous rather than discrete mechanisms through so-called fractional valving, this intervention can also be modulated by the performer's gestures to a high degree of sensitivity. This electroacoustic disposition coupled with the use of multiphonics and vocal tract resonances creates a very complex and unstable matrix of timbres, which gives rise to the overall syntax of the piece, presenting here an initial approach to an electroacoustic resonator as a statistical-organological investigation of acoustic production.

Haute école de musique de Genève and UNTREF (Buenos Aires), and is a PhD candidate at the Hochschule der Künste Bern / Musikhochschule Freiburg.

Jack Adler-McKean promotes the tuba family through collaborations with ensembles, composers, and academic institutions. Recent projects include performances with Klangforum Wien, music theater productions at the Luzerner Theater, collaborations on new solo works with George Lewis and Sarah Nemstov, premières at the Darmstädter Ferienkurse (2018 scholarship prize winner), and recitals in Buenos Aires and New York, as well leading tuba masterclasses in Jihlava, composition seminars in Malmö, and writing reviews for *TEMPO* and *Music and Letters*. His first book *The Playing Techniques of the Tuba* was published by Bärenreiter in 2020.

## **Luhee Hyunkyung Shin**

*Nuk* (2023) for Contrabass and Live Electronics

### **Program Note**

The title *Nuk* means soul in Korean and represents a non-material and supernatural being that is believed to dominate the body and mind.

### **Biography**

Luhee Hyunkyung Shin is a contrabassist, electroacoustic

Based on the concept of collective unconsciousness revealed in Carl Jung's study, it explores the archetypes that exist at the ethnic level. It focuses on Korea as a subject of inquiry with its long history of ethnic unity. As a method of exploring the archetypes that are difficult to reveal clearly, this piece allows the Korean performer to improvise during the creation and performance process. In the creative process, melodies are composed based on repeated motifs and rhythmic aspects during improvisation, and electronic sound transformation is possible as a device to amplify the aspect of personal unconsciousness beyond the materiality of the contrabass. During the performance process, the path of inquiry is guided by the score, and the performer continues to explore the original by adding improvisation. This process sets the performer as an ego with a persona as a subject of negotiation for the external world and establishes an identity as a unique human being in the process of transforming and growing through dynamic movements and psychological energy.

*Nuk* breaks the limitations of the contrabass through its meaning and delivery method. All sounds come from the contrabass and are processed with Csound and cabbage plug-in to transform the sound of the bass. The *Nuk Live System*, a Csound Plugin specifically designed for this piece, uses functions such as delay with cross synthesis, distance emulator, multi-reverb, and spectral effects to enable live performance with electronics. It also explores new techniques through the exploration and transformation of extended techniques for contrabass. During the live performance, certain parameters are set that go beyond the physical limits of the contrabass, resulting in the replication and layering of sound. In particular, the percussion characteristics of the contrabass are highlighted through Crossed Delay, Bounce Delay, and Shredulator, and the sound is modified using real-time spectral processing.

## **Kasey Pocius and Tommy Davis**

*eTu{d,b}e* (2022) with spatialized improvising agents

### **Program Note**

The *eTu{d,b}e* framework is a series of performances including improvising musical agents and a performer on the eTube, an augmented instrument utilising a saxophone mouthpiece and custom controller interface. The title *eTu{d,b}e* simultaneously refers to the name of the eTube and to a series of improvised etudes based on human-computer musical interactions. The French word *étudier* (to

compose, and music technologist with a deep passion for shaping the future of sound and culture. Her innovative spirit drives her to explore new frontiers of music and to design novel ideological and technical systems that allow her to compose and perform in this evolving sonic landscape.

Having started her musical journey as a classical bassist, she has since expanded her artistic interests and explored sound in new and exciting ways. Her compositions incorporate extensive use of technology, including the design of software and hardware that extend the possibilities of sound. In addition, she integrates other creative disciplines, as noticed by her multi-channel, multi-sensory interactive installations.

### **Biographies**

Tommy Davis embraces a versatile career in music driven by the desire to collaborate with multifaceted artists in co-composed or co-improvised projects and to

study) suggests that the performer and musical agents *étude* (study) each other in performance. The performer and/or programmer learn how agents react differently with certain audio corpora or listening settings, and the agent studies the performer's sound using audio descriptors and machine listening via the microphone.

The eTube is purposefully limited in its sound production yet it proposes an intriguing sound world which features techniques such as timbral trajectories, percussive attacks, multiphonics, layered overtones, and singing while playing. A light, flexible, and directional instrument, the eTube invites movement and spatialised gestures to be incorporated into performances. These instrumental gestures also appeal to a spatialised performance environment for the electronics. Augmented with a simple two- button controller, the eTube enables communication with the improvising agents, influencing listening and interaction settings in the software.

Over the past year Kasey has developed spatialisation models for the *eTu{d,b}e* framework which enables the agents to be placed in discrete locations throughout a multi-loudspeaker setup. Numerous presets have been created which place the agents in different locations throughout the speaker setup. Kasey will use a MIDI controller to manipulate the spatialisation presets. Processing of the eTube's microphone will also interpolate between adjacent spatialisation presets, allowing the positioning of the agents to constantly react to the eTube's sonic output, helping mimic the spatial cues created by the micromovements of real musicians.

share the results within his community and abroad. He is currently a doctoral candidate and SSHRC Doctoral Fellow at McGill University's Schulich School of Music under the tutelage of Marie-Chantal Leclair. His research investigates live electronic music performance and computer improvisation through a research-creation project called *eTu{d,b}e*. Tommy's current research interests include improvisation, contemporary saxophone techniques, posthumanism, and human-computer interaction and agency in computer music performance. With Student Research Awards (2021–22, 2022–23) from the Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT), Tommy has been developing an augmented instrument called the eTube alongside Vincent Cusson and Kasey Pocius.

Originally from St. John's, Kasey Pocius is a gender fluid intermedia artist located in Montreal who grew up experimenting with multimedia software while also pursuing classical training in both viola and piano. In late 2014, Kasey began to concentrate more intensively on the creation of

## **Quentin Lauvray (performed by Kasey Pocius and Tommy Davis)**

*Enfant, apprenez-nous à parler* (2022) for eTube and live electronics

### **Program Note**

*Enfants, apprenez-nous à parler* (Children, teach us how to speak) is a piece for eTube and live electronics. The piece is based on an article by Brandt & al. (2012) which shows that the language acquisition in infants is first a musical process. The infant, progressively, playfully, and by a non-linear learning process, selects the sounds they can produce from the chaos of their screams, babbling, comings, and exclamations. Through imitative games and independent explorations, interspersed with the urgent need to express oneself and occasional contemplative silence, the baby learn how to shape phonemes, words, phrases. Based on this idea, the piece is organized in different « learning steps » in which recognizable sounds are extracted from complexe and semi-improvised textures. Those sounds gather and are arranged to create more complexe configurations and musical phrases. The electronics, which include an improvising agent, act like an external stimuli (a parent) creating pressure on the evolution of the musical discourse, insisting on certain sounds, but which is not insensitive to the musician's propositions.

digital audio works. Outside of fixed electronic works, they have also pursued mixed media performances with live electronics, both as a soloist and in comprovisatory collaborative environments such as CLOrk, Exit Points & Fillesharmoniques. They are particularly interested in multichannel audio works and spatialization, and how this can be used in group improvisatory experiences. They hold a BFA from Concordia in Electroacoustic Studies and are currently pursuing an MA in Music Technology at McGill under the direction of Dr. Marcelo M. Wanderley. They are also the current Technical Coordinator at Matralab.

Quentin Lauvray is a French-American composer of acoustic, electronic and mixed music based in Montreal. He studied in the Conservatoire of Toulouse in France, and obtained Bachelor and Masters degrees from McGill University under the supervision of Chris-Paul Harman and Philippe Leroux. His music is performed by international ensembles around the world, including Ensemble Cairn, Orchestre de Radio France, Nouvel Ensemble Moderne, Meitar



Ensemble, Ukho ensemble, among others. His music is the synthesis of his interests for research (in perception and cognition of music), new technologies (A.I., computer assisted composition, etc.) and literature. He is published by BabelScore.

## **Ningxin Zhang**

### *Kagemusha* (2022) for Live Pipa and Electronics

#### **Program Note**

Inspired by Akira Kurosawa's jidaigeki film *Kagemusha*, *Kagemusha: for Live Pipa and Electronics* is an eight-minute electroacoustic piece that explores new possibilities of the traditional Chinese plucked instrument *pipa*. The piece highlights how people in the Sengoku period battled with the severity of wars at the disastrous end of a turbulent era. Musically, the *pipa* and the electronics always echo throughout the piece. It starts with electronic sounds and slowly introduces the *pipa*. The *pipa* part follows the traditional *pipa* repertoire form, showing various left- and right-hand techniques. All the electronic sounds are generated based on the melodies played by the *pipa* using signal processing tools to create a dark atmosphere, mimic the fierce metallic sounds of swords colliding, and portray a state of chaos that people were struggling with.

#### **Biography**

Ningxin Zhang is an electroacoustic composer, sound designer, and *pipa* player born in Chengdu, Sichuan, China. Her college studies began at the Hong Kong Baptist University, majoring in Translation, Interpreting, and Intercultural Studies. She then continued to study Electronic Production and Design at Berklee College of Music. In Ningxin's electroacoustic works, she uses various signal-processing techniques to compose with field recordings and modular synthesized sounds, exploring topics related to sociology, psychology, and philosophical theories such as phenomenology, structuralism, and typology. Also, she has been focusing on using Csound to develop

synthesizers and signal-processing tools for different platforms such as DAWs, Teensy, Raspberry Pi, Unity, and Oculus Quest. Ningxin has performed as a pipa/electric pipa player at many concerts, including performances of microtonal music at the Micro-jam concert, traditional Chinese music at the International Folk Festival, and multichannel audiovisual pieces at the Interdisciplinary Arts Institute Showcases.

## **Alma Laprida**

### *Improvisation on Marine Trumpet and Electronics*

#### **Program Note**

Performance of a piece for marine trumpet and electronic processing. The marine trumpet is a rare medieval instrument that became “obsolete” in the 18th century. It is generally distinguished for its triangular shape and its only string. However, it doesn’t have a standard configuration: it has different sizes, shapes and numbers of strings. It also doesn’t have teachers, at least in South America, where I lived when I started playing it.

The marine trumpet I own is a two-string custom-made one. I have been working with the instrument since 2007. I first played it in Ensemble Decamerón, a medieval music ensemble specializing in secular music of the 11th, 12th and 13th centuries. Then I joined the free improvisation scenes of Buenos Aires in 2010. The contact with experimental music and the technical background I got while studying Electronic Arts at the University of Tres de Febrero led me on a path of autodidacticism. Through the years, I carried out several experiments, including working with extended techniques, amplifying the instrument, using pedals to process the sound and collaborating with composers and sound artists.

#### **Biography**

Alma Laprida (San Miguel, Argentina) explores the territories among composition, improvisation, performance and installation. She works with trumpet marine, field recordings, synthesizers, lyre and other non-conventional instruments and objects. She played, performed and set installations in Argentina, Brazil, Colombia, Chile, Italy, Mexico and the United States. She released three solo albums, two collaboration albums and several pieces in compilations. She’s

In 2022, after a hiatus in playing and researching the instrument, I recorded an album -currently in post-production- that shows some of the techniques I've been working on. Since then, I have been regularly playing the instrument in the experimental music scene of DC. The concert at the Conference will focus specifically on the harmonics and multiphonics of the trumpet marine.

currently working on an album for trumpet marine.

Laprida studied piano at Julián Aguirre School of Music, Arts Management at the Universidad Nacional de Tres de Febrero and Electronic Arts at the same University. She worked as Curator at the Centro de Arte Sonoro, and was an Assistant Professor at the Universidad Nacional de Tres de Febrero. She's now pursuing an MA in Contemporary Latin American Aesthetics at the Universidad Nacional de Avellaneda (Argentina). After living and working in Buenos Aires for ten years, she's been based in Maryland, USA, since 2021.

## **Alexander Ishov and Theocharis Papatrechas**

*Morphés I.5* (2023) for flutist, fixed media, live electronics, and spatialization

### **Program Note**

*Morphés* for Flute and Electronics is a multipart electroacoustic collaboration between flutist Alexander Ishov and composer Theocharis Papatrechas. *Morphés's* objective is to utilize technology to reveal the inner acoustic world of the flute, displace auditory perspective, and allow listeners to inhabit otherwise inaccessible sonic landscapes.

*Morphés* is the creative output of PrismaSonus, an artistic research initiative exploring the relationship between microphone placement, technique, and perception. By placing sensors inside the body of the instrument, this project highlights timbres and microtechniques that are otherwise hidden to performers and listeners. PrismaSonus examines how technology, technique, notation, and listening interact and converge

### **Biographies**

Alexander "Sasha" Ishov is an innovative flutist specializing in 20th and 21st century music, devoted to the co-creation of new acoustic and electroacoustic works, as well as showcasing repertoire that challenges perceptions of the historical canon. As a committed researcher, he explores the intersection between

in electroacoustic collaborations, proposing novel ways of creating immersive auditory experiences.

The first part of this collaboration, titled *Morphés I*, is a 30-minute fixed media work for 20 channels that was premiered in February 2023 at the Spatialization Lab of the California Institute for Telecommunications and Information Technology (CalIT2). The 20 loudspeakers in the space are arranged in a dome configuration, where listeners receive sound from all directions. Through a constantly shifting musical landscape, *Morphés I* challenges the sense of space, timbre, and orientation.

At this event, working within a more compact setup, the team presents *Morphés I.5*, integrating an interactive dimension into the experience. The performer, their flutes, and their signals join to form a stimulating dialogue with pre-recorded materials. *Morphés I.5* seeks to challenge further the spatial perception and orientation of the listener, alternating and overlaying the distinct acoustics of the interior space of the flute, the virtual space of the loudspeakers, and the performance space itself.

In June 2023, the team will expand the live performance version into *Morphés II* occupying the 32 loudspeakers of the Experimental Theater at UC San Diego's Music Department. *Morphés III* will be an online version of the project, mixed binaurally for headphones. Later in 2023, PrismaSonus will unveil an interactive database of electronically-mediated flute techniques that will serve as a modern, interactive resource for flutists and composers taking upon electroacoustic collaboration.

interface design, pedagogy, and electronics, engaging with issues of design in the practice room, the classroom, and the concert hall. He is currently a DMA Candidate in Contemporary Music Performance at the University of California San Diego, and holds the Aspen Contemporary Ensemble flute fellowship position.

Theocharis Papatrechas is a composer and sound artist interested in utilizing technology to expand sonic possibilities and engage listeners into immersive artistic experiences. Having obtained a Ph.D. in Music from UC San Diego, he is currently holding the position of Postdoctoral Scholar at Qualcomm Institute of CalIT2. Converging research on environmental science, acoustic ecology, and audio arts, through data-driven sonification, his work investigates the impacts of extreme events on the acoustic signatures of underwater and remote terrestrial environments.

## **Concert 1b: Queen's Head Pub, 9:00pm – 12:00am**

Featuring late-night DJ sets by Harvard and Berklee music students

## FRIDAY MORNING

### Workshop: Open-source and Networking Tools to Deploy Ephemeral Immersive Spaces [9:15am – 10:45am, Room 9]

#### Edu Meneses and Thomas Piquet

##### Abstract

Music, media, and technology research are intrinsically interdisciplinary. From a research perspective, research involving the development of art-oriented tools usually lacks larger user bases for evaluation and data collection in production situations or real-life usage. From the musical practice perspective, exploring state-of-art tools during their development allows artists to tailor these art facts according to production needs while having the feedback needed to experiment with a little compromise on the quality of the artistic work. Developing open-source tools such as Puara, a framework to create gestural controllers and self-contained systems for artistic exploration, allows artists and researchers to deploy immersive spaces and set artistic performances using off-the-self plug and-play hardware and software components.

Puara provides interconnection with standard artistic software/hardware for easy integration with the artist's workflow. This integration allows artists to explore sound spatialization, video mapping, gestural control, and sound synthesis with embedded devices such as Raspberry Pi or Nvidia Jetson.

Open-source and Networking tools to Deploy Ephemeral Immersive Spaces is aimed at art researchers, artists, designers, content creators, and other creatives interested in creating immersive spaces using research-developed tools. We will use off-the-shelf hardware and open-source software to explore SAT/Metalab tools, connecting them with the existing workflow of researchers and artists. Participants will learn about Metalab tools for different artistic tasks, including sound spatialization, video mapping, and computer vision. The topics include evaluating the available space, setting up projection mapping, calibrating video projectors and sound equipment, setting up cameras for live pose tracking and estimation, and employing a software pipeline to map everything together.

##### Biographies

Founded in 2002, Metalab is the research laboratory of the Society for Arts and Technology (SAT). Metalab's missions are to stimulate the emergence of innovative immersive experiences and to make their design accessible to artists and art creators.

Edu Meneses is a music technologist, digital luthier, composer, and performer. A Ph.D. in music technology at McGill University (IDMIL and CIRMMT), Edu is currently a researcher-developer at SAT. He works with embedded systems for artistic tools and sound spatialization.

Thomas Piquet is a research engineer at SAT. He has a Ph.D. in microprocessor architecture and is specialized in embedded computing. Thomas worked for several years in the telecommunications industry before joining the Metalab team where he combines his

The devices used in this exploration have embedded tools such as SATIE, Splash, and libmapper. Digital Musical Instruments and gestural controllers can be used to interact with the system. The T-Stick, the GuitarAMI, and the TorqueTuner are examples of devices built with Puara modules that allow fast connectivity through OSC (Open Sound Control) or libmapper.

research interests while continuing to develop his artistic skills in composition, sound design, mixing, and acoustics.

## **Gendered Spaces in the History of Music Technology [9:15am – 10:45am, room 6]**

### **Katja Heldt**

“Women at European Studios for Electroacoustic Music in the Early 1950s – A Feministic Reading of the Studio as Space”

#### **Abstract**

The historiography of electroacoustic music in the newly established studios for electronic music of the 1950s is marked by its recurring perspective on male composers and their compositional achievements. The early studios for electronic music in Europe such as the French *Studio d'Essai* in Paris, in which Pierre Schaeffer and colleagues developed the first revolutionary approaches to *musique concrète* were located at radio stations and served as a place for experimentations and development of new electronic instruments, new sonic endeavors and new forms of music production.

An increasing number of recent feministic writings in musicology and other disciplines (such as Cathy Lane, Louise Marshall, Joanna Mary Langton, Tara Rodgers etc.) has been shifting their interest towards a feministic reading of the impact of women in music. In line with this way of thinking, my dissertation project investigates the studio for electronic music as space – referring to Doreen Masseys notion of space as the product of intersecting social relations. This interpretation of space will serve as a base for a feministic approach to provide a socio-historical overview of the compositional achievements of Danish composer Else-Marie Pade (1924-2016) and the French composer Éliane Radigue (\*1932), who both developed in the course of their careers particular compositional styles, while challenging existing listening habits and uses of newly developed electronic instruments.

#### **Biography**

Katja Heldt is enrolled as a PhD candidate at Lunds University in Sweden researching women in studios for electronic music in the early beginnings of Electronic Music. She studied musicology at the University of Cologne, Université de Montréal and Humboldt University Berlin with focus on electronic music, transculturality and decolonization in new music. As an author, she writes for music magazines such as Positionen, Neue Zeitschrift für Musik, Circuit - Musiques Contemporaines, Glissando and VAN. She works for the Darmstadt Summer Course for New Music and was responsible as project manager for the research

My paper centers on my empirical research in the private archive of Else Marie Pade as well as the archive of the *GRM - Groupe de Recherches Musicales* in Paris and around Éliane Radigues home studio, offering a feministic perspective on *space* as a metaphor for the studios that can be interpreted through a socio-economical, intersectional perspective, trying to reveal the female composers' strategies to enter highly hierarchical and exclusive spaces, that were dominated by patriarchal structures and thus create their own musical approaches, new musical techniques, and instruments.

projects  
"DEFRAGMENTATION -  
Curating Contemporary  
Music" on gender equality  
and diversity in  
contemporary music festivals  
and "Donaueschingen  
Global" on diversity in new  
music as part of the 100th  
anniversary of the German  
festival Donaueschinger  
Musiktage.

## **Kelli Smith-Biwer**

“I Want My Stuff Really Separate’: Modular Masculinity and U.S. Midcentury Hi-Fi Culture”

### **Abstract**

Hi-fi home audio systems are modular—that is, they are made of a collection of interchangeable components such as turntables, receivers, amplifiers, and loudspeakers. At the advent of hi-fi culture in the 1950s, modular audio systems were marketed primarily to white, middle-class men while all-in-one console systems were advertised in women's and home magazines. As early as 1952, well-known audio critic Edward Tatnall Canby reinforced this gendered technological divide when he wrote, “Aunt Minnie can run a [console system] and so can three-year-old-sister Jane...Me I'm a hi-fi man of sorts and I want my stuff really separate...The separate-unit system is the thing for me.”

In this presentation, I introduce my concept of modular masculinity, a framework that reveals how post-war technological discourse reflected and encouraged an understanding of masculinity as flexible, reconfigurable, and dynamic. Drawing on theorizations of modularity by media theorist Tara McPherson and historian of technology Andrew L. Russell, I take seriously the ways in which midcentury hi-fi media connected home audio, modularity, and 1950s American masculinity. I show how the hi-fi system, with its separate, customizable components, facilitated a range of technological possibilities that allowed men to explore a variety of masculine roles: moody musician, loving father, dutiful husband, resourceful carpenter, exacting engineer, and so on. My case studies center on material from midcentury magazines such as High

### **Biography**

Kelli Smith-Biwer recently graduated from the Ph.D. program in musicology at the University of North Carolina-Chapel Hill. Leveraging her past work experience in IT and network engineering, she seeks to broaden the conversation around gender, equity, and audio technologies. Her dissertation centers on the gendered buying and listening practices in high fidelity audio culture in the United States. Kelli has published in the *Journal for the Society of American Music*, won the 2018 Somers Award for Excellence in Teaching, received the 2019 James W. Pruett Research Fellowship, and was the

Fidelity, Audio, and Popular Electronics; as well as corporate records from the Ernest Dichter Papers and David Sarnoff Library.

Modular masculinity is a flexible framework for analyzing the social, political, and economic forces that shaped understandings of the ways men engaged with home audio technologies. I use modular masculinity to move beyond rhetoric that defines masculinity as the opposite of femininity and instead reveal it as a multivalent formation that develops both in dialogue with and independent from femininity. Gender has never been a simple male-female binary and this deep dive into the discourse surrounding midcentury hi-fi equipment illuminates complex constructions of music technology and masculinity that continue to influence marketing and consumer behavior today.

inaugural UNC Arts Everywhere Music Technology Fellow. A vital aspect of Kelli's work hinges on community engagement and advocacy. She has arranged workshops taught by Black, queer, and femme-identifying producers; facilitated hands-on music technology demonstrations in local venues; and founded gender inclusive electronic music ensembles at Michigan State University and the University of North Carolina.

## **Erik Broess**

"Toneful Hands & Nimble Fingers: Gender, Factory Labor, and the Mythology of Builder-Signed Amplifiers from Fender's "Tweed" Era, 1948-1960"

### **Abstract**

Guitars and amplifiers made at Fender between 1948 and 1960 are among the most valuable and collectible instruments in popular music. Fender's instruments from this era are exceptional in that they bear the handwritten signatures of the Mexican women by whom they were assembled—a transitional bit of ephemera from before the company switched to rubber stamped serial numbers in 1960. Today these extant builder signatures have become highly valuable features for vintage instrument collectors, and the women behind the signatures have become heavily mythologized for their proximity to the company's golden age. Because collectors know so little about these women as people, discourses about them often inadvertently reinforce spurious stereotypes that cast Mexican women as ideal laborers due to their supposedly nimble hands and fingers.

Following Fender's builder-signed Tweed era instruments, this paper asks after the relationship between the infrastructure behind electric guitar gear and guitarists' ideologies of "tone." Via extensive ethnography on social media sites with vintage instrument collectors, I show how collectors have hailed Fender's earliest employees for the

### **Biography**

Erik Broess is a guitarist and musicologist who is finishing his Ph.D. in Music History at the University of Pennsylvania. His dissertation, "Unobtainable: Electric Guitar Gear Culture & The Mythology of Tone," explores guitarists' epistemologies of sound by following the various materials which they understand to be sources of "good tone." These sources include electronic components, building materials, global infrastructures, and scenes of making that underlie the



superior tone of the instruments they built—often attributed to their supposedly “nimble fingers.” Much in the same way that guitarists mythologize virtuosic guitar gods by stressing that their tone is produced “in their fingers,” I suggest that an analogous discourse has developed tracing the tone of vintage Fender instruments to the hands and fingers of the women by whom they were assembled. Employing oral history and archival research, this paper also aims to counter these essentializing narratives by way of an employee-centered history of Fender’s mid-century factory system.

contemporary guitar industry. His history of Fender’s mid-century employees is forthcoming in the *Journal of the Society for American Music* and was recently awarded the Lise Waxer Student Paper Prize from the Society For Ethnomusicology’s Popular Music Section in addition to being named runner-up for the Wong Tolbert prize by the Society’s Section on the Status of Women.

## **Materialist Organology [9:15am – 10:45am, Room 4]**

### **Michael Dekovich**

#### **“A Timeline of Labor Arbitrage in the Electric Guitar Industry”**

##### **Abstract**

Organologists and music historians have long placed importance on the locales of musical instrument production, sometimes investing near-mythical status to an area’s resources and historical moments. In contrast, modern electric guitar makers create their own production centers through importation of raw materials, components, and machinery that would have previously depended on localized availability. Aided by the development of global supply chains in the twentieth century, large electric guitar firms have instead sought to build factories according to the location of cheap labor markets—a practice called labor arbitrage.

This paper examines the political economy of electric guitars through the geographic distribution of factories and manufacturing technologies over time. The electric guitar’s mechanical electronic simplicity makes it amenable to developments in globalized trade, embedding itself not only in the West’s socially distributed electrical infrastructure but through its

##### **Biography**

Michael Dekovich holds a PhD in Music Theory from the University of Oregon. A rock guitarist and composer, his research explores the interaction of political economy and musical form in rock and metal music. In 2021, he presented on the role of the global division of labor on the organology of the electric guitar at the national meeting of the AMS. His chapter, “Death Metal Dodecapphony: Partition

international trade relations as well. The mobility of the electric guitar industry is contrasted with the immobility of labor markets. Electric guitar firms began in small workshops in the Global North and grew into factory production during the rise of American productive hegemony in the early twentieth century. As guitar companies grew, they relocated domestically to take advantage of differences in labor cost. The proliferation of competitors in the postwar period drove firms to seek cheaper foreign labor. Since the 2007 economic crisis, the industry has undergone numerous mergers, acquisitions, and a sharp increase of outsourcing and market stratification as firms struggle to maintain profitability.

This paper contributes to the study of material culture—which often focuses on “the meanings that objects possess” (Dennis 2018)—by providing insights into the economic processes that create these objects. Corporations’ dependency on labor arbitrage demonstrates that symbols are far from fixed but must be continually reproduced in ever-more-precarious contexts. Thus, though emblematic of industrial modernism and romantic mythologies of individualism and rebellion, electric guitars are subject to the same market logic and dialectical processes as any mass-produced commodity.

Schemes in Ron Jarzombek’s “Twelve-Tone Music,” appears in *Musical Waves: West Coast Perspectives of Pitch, Narrative, and Form*. He has a forthcoming chapter titled “Compound Bridge Sections in Rock and Metal Music” in *The Routledge Handbook to Metal Music Composition: Evolution of Structure, Expression, and Production*.

## **Abigail Byrd**

### “Craft or Commodity? Unearthing the Impact of the String Instrument Industry”

#### **Abstract**

Since the common practice period, stringed instruments have been synonymous with the sophistication of Western art music. Stradivarius violins are regarded as pieces of art worth tens of millions of dollars, and stringed instruments from the 17th century are still played today. Modern luthiers continue to source rare or endangered ebony, pernambuco, maple, and spruce to create instruments that last for generations. However, stringed instruments can also be bought through online retailers for less than 100USD. Factory-made stringed instruments can be built in a matter of days, exported in the millions from China each year, and discarded after 15 years on average. In contrast to the craftsmanship of high-end instruments, factory produced stringed instruments are often distributed without knowledge of their creators or materials. Despite musicians’ idealization of artisanal instruments, their larger environmental footprint per unit than factory instruments calls

#### **Biography**

Abigail Byrd (she/her) is a third-year undergraduate student at the University of Alabama (UA) in Tuscaloosa, AL, studying Music Theory with a minor in Liberal Arts through the Blount Scholars Program. Originally from Greenville SC, Abigail attended the Greenville Fine Arts Center as part of their chamber strings program and was enrolled in music theory and history courses throughout

into question what constitutes a “good” instrument amidst the industry’s increasing ecological concerns.

In order to address Elkington’s triple bottom line (1994) of people, planet, and profit and pursue sustainable growth, string manufacturers must pursue ethical sourcing alongside transparency in factory materials and practices. Due to globalized means of production, string instruments can now exist both as a commodity and as a piece of art. This paper examines wood sourcing in the string industry and explores how manufacturers’ considerations are influenced by the status they ascribe to the instrument itself. As the industry’s longevity is threatened due to wood scarcity, the violin’s status evokes different implications for luthiers, corporations, performers, and pedagogues.

In addition to producer information and export statistics, this paper explores the research and activism of conservation organizations to document the effects of industry practices on ecosystems. Though the quantities and disposability of factory instruments may result in a larger environmental footprint, artisanal instruments threaten old growth forests that have an indeterminable value to our future. Though luthiers have made strides toward a sustainable future, including factory instruments in these discussions will allow conservation efforts to address the output and impact of the industry as a whole and ensure the future of string instruments for all musicians.

## **Stephan Hammel**

### **“The Recorder in the Age of Mechanical Reproduction”**

#### **Abstract**

Of the many instruments reintroduced into musical life by the Early Music Movement in the twentieth century, the recorder has doubtless enjoyed the most success. The instrument remains ubiquitous despite the “tidal wave of undisciplined but rewarding enthusiasm” Robert Donington describes it arousing in the 1930s having long since crested and receded. In the classroom, it has outlasted the slide rule and the chalkboard. The recorder’s principal appeal in the modern world consists in indexing an alternative form of musical engagement that evades the infelicities of commercial music making in the industrial period. In the era of mass culture, the recorder’s soft and easily-produced sound lends itself to intimate, amateur performance. Taken up in this way, recorder

her high school education. Abigail is an involved cellist and string bassist at UA in the Huxford Symphony Orchestra and chamber music program and is studying the piano, viola da gamba, guitar, and mandolin independently. At UA, she leads and participates in Reformed University Fellowship’s worship ministry that ministers to 300 students a week.

She presented a paper titled “Agency, Activism, and Environmentalism in the Current Music Industry” at the AMS-South conference in February and is planning to pursue a PhD in Musicology after finishing her undergraduate degree in 2024.

#### **Biography**

Stephan Hammel is Assistant Professor of Music at UC Irvine. His work is focused on developing a historical materialist framework for the study of music. His research encompasses the history of Marxist approaches to the subject—both “Western” and “Eastern” variants—as well as

playing resists the tendency of capitalist social relations to select for a firm division of musical labor and the consequent hoarding of musical skills by professionals. Those who first introduced instruction in the instrument into elementary education were intervening in what they took to be sterile and mechanical modern teaching methods aimed at reproduction rather than expression. The recorder bypasses musical modernity, offering the child an instrument of relative primitiveness that corresponds to their own stage of musical formation.

The importance of the instrument's pre-modernity is emphasized by the elaborate ornamental designs featured on standard models. Notably, these decorative elements are always featured on mass produced, plastic recorders despite their being specific to wood turning on a lathe. They serve as a reminder that whatever the recorder's pre-industrial bona fides, its remarkable trajectory in the last century is primarily shaped by material conditions: advances in material science, and, especially, the revival of German and Japanese manufacturing after the Second World War. If the recorder is a symbol of craft production, its ubiquity is nevertheless a product of commercialism and capitalist industry. This presentation analyzes the recorder's relationship to its mode of production with the aim of laying bare these informative ironies.

the role of music in the communist movement. In addition, he harbors an interest in musical modernism in Latin America, especially as it relates to Left politics. His first monograph, *Toward a Materialist Conception of Music History* will be published in Brill's Historical Materialism series in 2023.

## **Panel Discussion: Music Pedagogy in the Age of Digital Instruments [11:00am – 12:30pm, Room 9]**

### **Daedelus, Rachel Rome, Eran Egozy, and Ramon Castillo**

#### **Biographies**

Daedelus has been an instigator of electronic music culture for the past 20-plus years. A fore-figure of Los Angeles' beat scene, they have released more than 20 LPs, countless EPs, remixes, and additional productions on labels such as Ninja Tune, Brainfeeder, Dome of Doom, and more. As a performer they're synonymous with performative controllers, from the Monome to computer-free modular, and have played 1,000-plus shows across six continents at venues ranging from the underground Low End Theory to festival main stages such as Coachella. Now a founding faculty member for the Berklee College of

#### **Abstract**

Four faculty-artists from different institutions reflect on the opportunities and challenges of teaching music performance with electronic and digital instruments, with a special focus on how creative practice informs their pedagogy.

Music's new EDI (electronic digital instrument) program, Daedelus has begun to live up to their Greek mythological namesake.

Rachel Devorah Wood Rome practices improvisation with bespoke electronics, both analog and digital, and with French horn, her mother tongue. Sometimes she puts notes on a page. She is interested in superhuman prolongation, opaque complexity, the re-signification of archaic tools and materials, and parallels between the physical properties and social meanings of spaces. She creates aural, and sometimes also visual, structures that seek to reveal and reframe habits of auto-echolocation, situating one's self with/in/among sound/space/time. She values machines for their patience. Her research and teaching practices amplify critical agency in the use and design of sonic media.

Eran Egozy, Professor of the Practice in Music Technology at MIT, is an entrepreneur, musician and technologist. He is the co-founder and chief scientist of Harmonix Music Systems which developed the video game franchises *Guitar Hero* and *Rock Band*, selling over 35 million units worldwide and generating over \$1 billion in annual sales. Eran and his business partner Alex Rigopulos were named in Time Magazine's Time 100, Fortune Magazine's Top 40 Under 40, and USA Network's Character Approved awards. His current research and teaching interests are interactive music systems, music information retrieval, and multimodal musical expression and engagement. His recent projects include *\*12\**, an audience-participation work for chamber music where audience members use their mobile to musically interact with the stage musicians, and *Tutti*, a massively multiplayer mobile-audience performance piece where the entire audience becomes the orchestra. Eran is currently developing *ConcertCue*, a program-note streaming mobile app for live classical music concerts. *ConcertCue* is featured in concerts of the Boston Symphony Orchestra and the New World Symphony, and is the recipient of a grant from the Knight Foundation.

Ramon Castillo, D.M.A., is a composer, performer, music technologist, improviser, and educator with a focus on live expressive performance using unconventional instruments and techniques. His compositional output includes works for Minecraft/video games (as instruments), robots, synthesizers, and traditional acoustic instruments. His long-term creative project Autumn Ate Everything integrates much of the above in a solo-performance package. A list of instruments Ramon has performed in public: Trumpet, Horn, Guitar (electric, acoustic, classical, guitar synth), Bass, Percussion (mostly mallets and aux), Piano, Cello,

Banjo, Toy piano, Melodica, Voice, Bass ukelele, Baton (conductor's), Balinese gamelan (gong, gangsa, reong, kempli, pokok), Javanese gamelan (Lou Harrison's Si Betty), Synthesizer, Robot, Laptop/iPad/Electronic Digital Instruments, guitar pedals (as a musical instrument), sound-reactive video synth, Otamatone, Minecraft (as a musical instrument).

## Virtual Instruments and Collective Sonic (Sub)Cultures [11:00am – 12:30pm, Room 6]

### Elena Razlogova

#### "Freeform Radio Station as a Musical Instrument"

##### Abstract

In the 1987 *Village Voice* profile of the listener-supported freeform radio station WFMU, based in New Jersey, DJ Vanilla Bean (Frank Balesteri) thus defined freeform approach to broadcasting: "The station is there to be used as a musical instrument." Since the late 1960s, WFMU's across-the-board open-format lineup has stretched radio and digital technologies, mixing music genres, sound collages, and spoken word segments (Freedman 2007). How does one "play" such an instrument? I begin with former WFMU DJ and London-based collage artist Vicki Bennett, aka People Like Us. Bennett has produced numerous sound works from recordings of her on-air performances at WFMU and other radio stations in the United States and Great Britain. Bennett's *transmission art* (Joseph-Hunter, Duff, and Papadomanolaki 2011) practice exemplifies open-format broadcasting: it is eclectic, collaborative, iterative, improvised, and oriented toward process rather than the final product (Bliss 2021). Drawing on archived radio shows and interviews with a dozen of current and former WFMU DJs, I argue that the station as a unit has been built and "played" in such a way by its entire collective, not just a few radio personalities featured in journalistic or historical profiles. Extending Benjamin Piekut's notion of "vernacular avant-garde" (2019), I describe how these DJs' diverse music collections enmeshed the station in multiple noncommercial and "petty capitalist" (Born 2013) creative networks, from postpunk, reggae, or experimental venues, labels, zines, and cassette exchange routes of the 1980s to the Free Software and Open Culture movements of the early 2000s. Looking at a freeform radio station as a *transmission art*

##### Biography

Elena Razlogova is an Associate Professor of History at Concordia University in Montreal. She is the author of *The Listener's Voice: Early Radio and the American Public* (University of Pennsylvania Press, 2011). She has published articles in *American Quarterly*, *Radio Journal: International Studies in Broadcast & Audio Media, Cultural Studies*, and *Social Media + Society*, among others, and numerous edited collections. She is writing a book on freeform radio station WFMU and the rise of online music.

instrument, then, reveals it as a *tool* (Tresch and Dolan 2013) for maintenance and repair of grassroots nonprofit music infrastructures.

## Jack McNeill

### “The Nightclub as Instrument: Performing Club Culture in Electroacoustic Composition”

#### Abstract

This presentation will explore the notion of the nightclub as a musical instrument in the composition of electroacoustic music through the lens of a recent collection of work, *Dérives*. There is a growing body of work across disciplines that considers the role of nightclubs and club culture in its participants’ identities and social lives, as well as work that considers musical factors, dance and architectural features, as well as the combination of all of these areas. Among this body of research, there is a prevailing notion that nightclubs and their surrounding spaces are sites of performance, yet there is a gap in the research on how this may apply to creative practices. The role of dance is central to performance within club spaces, soundtracked by electronic dance music (EDM), but performance exists beyond the dancefloor. It exists in the interactions between visitors and staff; it exists in the interaction with the architectural space itself in site-specific performance. Performance also takes place outside the four walls of the club space, in the preparation rituals and routines where club goers perform identities of otherness that club spaces facilitate. In my compositional work, the multiplicity of these performances surrounding club spaces are not solely socio-cultural phenomena, or indeed solely artistic or performative actions. Instead, they constitute material for the composition of new work.

In mid-2017, I began to engage with the notion of the nightclub as an instrument, documenting performances, memories, sounds and experiences through qualitative practices of field recordings, field notes, (re)constructed memories, and *dérives* with participants in and around club spaces. From this documentation, I gathered and constructed the material I had collected into electroacoustic works that reflect the interior, exterior, and associated social spaces of the nightclub. This presentation will explore how the construction of a methodology using ethnographic practices in and around club spaces might constitute an instrument. Moreover, I suggest that the nightclub and club spaces are not solely narrative, but also spaces that generate sonic material and, in

#### Biography

Dr Jack McNeill is an Associate Lecturer in Music and Sound Recording at the University of York. His research is concerned with club cultures as sites for investigation in creative practice. He obtained his PhD in August 2021 from the University of York; a practice-based project looking at ethnographic and artistic methods to document the architectural, topographical, and social spaces that surround the nightclub. He has recently presented work at the RMA 56<sup>th</sup> Annual Conference at Goldsmiths, the Audience Research in the Arts Conference at the University of Sheffield, the Dancecult Conference (Online), and the Sound Thought conference at the Centre for Contemporary Arts in Glasgow. Recent and forthcoming publications include work in the *Journal of Music, Health and Wellbeing*, and in the Handbook of Popular Music

turn, compositional forces that do not differ wildly from those that other composers might explore.

Methodologies. Recent commissions include collaborations with Liverpool's Resonate and Orchestras for All, and performances in the Liverpool Philharmonic and the Albert Hall, Nottingham.

## **Robert Strachan**

### **"Eurorack: Technology, Materiality and the Virtual in Contemporary Modular Synthesizer Culture"**

#### **Abstract**

As virtual studio technologies have become ubiquitous, converse musical cultures have emerged and proliferated with a renewed emphasis on musical hardware. This paper will examine this dialectic relationship between the virtual and tangible in popular music culture and its creative contexts with a particular emphasis on the modular synthesizer format Eurorack. Although Eurorack emerged as a standardised system of voltage controlled modular synthesis in the 1990s (whereby users could build their own purpose-built synthesisers through purchasing individual modules) the past decade has seen an explosion in small-scale manufacturers entering the market using the format and the development of defined culture around these technologies. This paper situates Eurorack in terms of its cultural, ethical and aesthetic contexts. The value of materiality within Eurorack culture can be seen as in some ways a reaction to digitization. It is a form of music making which affords tangibility in and increasingly virtual culture. Its use of physical patching to control of voltages and flows of electrical current stands in contrast to the intangibility of digital binary code. Its 'hands-on' control surfaces are an unwieldy physical antidote to the standardised virtual GUI's of screen-based Digital Audio Workstations. (DAWs). The often aleatoric nature of composition through 'patching' is often understood as eschewing the digital perfectionism associated with DAWs.

At the same time, the rise of Eurorack as both a format and culture has been facilitated through digital means in terms of its pedagogies, communication channels and economies. Furthermore, many Eurorack modules are composite instruments which use digital sound generation controlled through analog means. As such Eurorack should be

#### **Biography**

Robert Strachan is Senior Lecturer in Music at the University of Liverpool. He has published widely on a variety of aspects of music and sound including DIY cultures, electronic music, creativity, sound art and audiovisual media. He is the author of *Sonic Technologies: Popular Music, Digital Culture and the Creative Process* (Bloomsbury 2017). His sound and collaborative audiovisual installations have been exhibited internationally and his experimental/psychedelic rock band Bonnacons of Doom have toured extensively, playing numerous festivals in the UK and Europe.



understood as an essentially hybrid phenomenon which complicates commonly understood binaries: analog versus digital, software versus hardware, tangibility versus intangibility. Rather, I will argue that Eurorack is exemplary of the way in which within contemporary popular music cultures the analog and digital always overlap in significant and meaningful ways, informing and influencing one another.

## **Performance-based Studies of Virtuosity and Artistic Identity [11:00am – 12:30pm, Room 4]**

### **Shanti Nachtergaele**

“Sociomaterial Constructions of the Virtuoso: D. Dragonetti and G. Bottesini”

#### **Abstract**

Developed by Wanda Orlikowski and Susan Scott in the field of organization studies, sociomateriality is a framework for studying the interactions between technologies and organized groups. The theory of sociomateriality “makes a distinctive move away from seeing actors and objects as primarily self-contained entities that influence each other,” and posits instead that “material means are not so much tools to be used to accomplish some tasks, but they are constitutive of both activities and identities” (Orlikowski and Scott 2008, 455). In this paper, I apply the sociomaterial perspective to the study of two nineteenth-century double bass virtuosos: Domenico Dragonetti and Giovanni Bottesini.

My paper introduces Dragonetti and Bottesini by examining analogous depictions that fuse the virtuosos’ bodies with their instruments—one in the form of a caricature statuette, and the other as a cravat pin—which can be interpreted as metaphorical renderings of sociomaterial entanglement. From there, I investigate the construction of Dragonetti and Bottesini’s respective careers and virtuosic personas. I argue that Dragonetti’s virtuosity was defined by his activities as an arranger of other composers’ works, and that the strategic dissemination of anecdotes to and by his friends and colleagues was integral to the construction of his public image. By contrast, the burgeoning of mass media during Bottesini’s career positioned the locus of his prestige in the musical press, who conferred nicknames (i.e., “the new Dragonetti” and

#### **Biography**

Shanti Nachtergaele is a PhD candidate in musicology at McGill University, writing her dissertation on the sociomaterial history of the professional double bassist, 1760–1890. Shanti has published articles in *Early Music* and *Music and the Moving Image*, and contributed an essay to the forthcoming *Oxford Handbook of Arrangement Studies*. She is the recipient of a Vanier Canada Graduate Scholarship (2018–2021), and International Society of Bassists Special Recognition Award for Scholarship (2021). Also an active performer on double bass and violone, she specializes in historically informed performance practices. She is a member of Rosa Barocca

“the Paganini of the double bass”) and consistently described Bottesini’s playing in terms of his transcendent and transformative abilities.

Practice-based studies of Dragonetti’s arrangement procedures and Bottesini’s technique provide further insight into the roles that their individual approaches to the double bass played in shaping their respective virtuosic identities. These case studies reveal complex webs of relations that mediated Dragonetti’s and Bottesini’s reputations as virtuosos, both during their careers and into the present day. At the center of this web lie the performer-instrument entanglements that shaped Dragonetti’s arrangements and Bottesini’s compositions, and by extension the virtuosic personas they presented to audiences and the legacies that wound their way into the narratives of double bass history.

## **Theresa Coffey**

### “Music Mediation as Interface for Artistic Identity”

#### **Abstract**

How might practices of performance curation be seen as interfaces for artistic identity—dynamic systems in which material bodies, artistic media, creative processes, musical instruments, cultural systems, human relationships, and self-understandings interact to produce performer identities?

Alongside interview data, this paper draws on observation data from Ekki Minna Duo’s experimental performance at Berlin’s Hošek Contemporary to show that the individual creative practice of music curation—the critical assembling, mediating, and negotiating of artistic media in music performance—serves as an interface for artistic becoming.

This paper finds that contemporary accordion and cello ensemble Ekki Minna Duo draws new diagonals in their curative practice, disrupting and expanding the artistic assemblages in which they operate. With bare torsos and jogger pants, they perform the deconstruction of an accordion with a drill and pliers, extracting the inner harmonicas to play as wind instruments during a cross-legged meditation. Accompanied by electronic sound, they orbit the stage—plywood in the rusty hull of a cargo ship—clad in miniature angel wings. They transform the pauses between pieces into performance material. They juxtapose human skin and machines, noise and music, performance time and real time, the

(Calgary) and has performed with ensembles including Arion Orchestre Baroque (Montreal), Tafelmusik Baroque Orchestra (Toronto), and Accordes! (Oxford), as well as teaching and performing at the Festival de Música de Santa Catarina (Brazil).

#### **Biography**

Theresa Coffey is a researcher and trumpeter at the Norwegian Academy of Music. Her research centers on performer-curators’ experience and production of artistic identity in music curation, using sonic, visual, kinetic, somatic, ritualistic, temporal, and atmospheric aesthetics. She is particularly interested in forms of artistic work that push, break, or upend the boundaries and norms of the Western art music tradition.

As a trumpet artist, she has performed at the Ultima Contemporary Music Festival, and with the Norwegian National Opera, Oslo Philharmonic, and

mundane and the spiritual, acoustic and electronic sound. The Duo composes experiences that remap the assemblages of performance, music, musical works, musicianship, genre, instruments, and masculinity. They *become-with* their artistic practice, generating new creative roles and processes, experiencing empowerment, and enacting their humanity.

Existing empirical studies of musician identities consider primarily the roles of human gesture, energy, presence, and social frames in producing people. They lack attention to the intra-active agencies of artistic materiality—the entanglement of sound, movement, bodies, light, objects, and space—as well as to the meanings ascribed to artistic acts by the performers who enact them. This paper considers creative acts, media, and performers' relationships to them as an assemblage of artistic identity. It aims to expand existing understandings of artistic becoming to account for performative materiality and artistic media.

## Jiryis Ballan

### “Unearthing the Latent Sounds of the Buzuq: An Expedition Through the Synthesis Processes from Instrument Sound Board to Virtual Instrument”

#### Abstract

The Buzuq is a fretted plucked string instrument originating in Syrian and Lebanese cultures. Its long neck and small spherical body resemble the Greek Bouzouki and the Turkish Saz. Like those instruments, its sound is sharp yet soft, with three double steel strings tuned to C, G, and C that each span one-and-a-half octaves. Although the construction of the modern Buzuq dates to the early 20th century, its complex cultural identity has been in constant transformation.

Unearthing the latent sounds is associated with music embodiment and how one uncovers a deeper understanding of the Buzuq's mechanism. In this research, my bodily movement has become a source of sound— a sonic experience that technology has aided in amplifying. More importantly, this has sparked the beginning of archiving a sound library of unknown sounds of a marginalized Middle Eastern plucked instrument. In this endeavor, I explore the complex interplay between instrumental practice, sound design, and adaptation of acoustic sounds in the domain of virtual instruments. It is my ongoing objective to deconstruct the tension between Middle Eastern instruments and contemporary Euro-American music practice, as well as in academic

Grand Rapids Symphony, among others. She most recently joined Tine Thing Helseth's TenThing brass ensemble on their US tour. She received her bachelor's degree Cum Laude from Northwestern University and her master's degree from University of Maryland. She is currently a Ph.D. research fellow in performance practice at the Norwegian Academy of Music with advisors Tanja Orning and Even Ruud.

#### Biography

Jiryis Murkus Ballan, Palestinian composer, Buzuq player, performer, and musical director, Jiryis, grew up in Nazareth in the Galilee region. Ballan completed his M.A. studies in the music composition program at SUNY Buffalo as a Fulbright Scholar where he studied with composers Jonathan Golove and Cort Lippe AND focused on concert music, and music for modern dance. Jiryis co-direct The Caravan Orchestra and Choir project, an intercultural orchestra of young Palestinian, Israeli and and German musicians

discourses that concern practical research and intercultural music scholarship.

based. Before joining the Department of Music at UCI, he worked as a research assistant at the Music Department of the University of Haifa, researching The Urban Arab Palestinian Wedding Music in the Galilee region and the *maqam*-based music. His research was on the inclusion of the synthesizer in traditional Arab Palestinian music wedding ensembles.

## FRIDAY AFTERNOON

**Workshop: *EMKVLT* [1:00pm – 5:00pm, Holden Chapel]**

**Margaret Schedel, Sofya Yuditskaya, Jess Rowland, Susie Green, and Alyssa Wixson**

### **Abstract**

Performance workshop for *EMKVLT*, a band led by three womxn who use the physical properties of the electromagnetic spectrum to create installations, performances and recordings. Using electronic feedback, audio speakers, various kinds of microphones/pickups, and resonant objects of all shapes and kinds, we summon the feminine spirit of electromagnetism, aka the Goddess of the Electronic Medium. Drawing upon the history of electronic sound and seance, as well as the cutting edge technologies of artificial intelligence and physical computing, we create embodied sonic experiences. We have a flexible membership inclusive to all peoples who are willing to open themselves up to this spirit. In terms of current trends in audio technology, we invoke a feminist response to the masculinization of the music industry, audio engineering, and to the artistic spaces of sound arts in general. Our newest instruments, the Bareëmins, functions as a score via the antenna embedded in the image on the page.

### **Biographies**

Formerly known as Bunker, EMKVLT consists of Sofya Yuditskaya, Margaret Schedel, Jess Rowland, Susie Green, and Alyssa Wixson. They are a regular fixture on the New York City improvisation scene, with performances at H0L0, Harvestworks, Improvisation Summit, Putty's Corination, NYU, Stony Brook and SummerCamp. Individually the musicians have internationally recognized careers; EMKVLT is the

The workshop will begin with a 30-minute lecture on scores as instruments and how to build the baremins. Following this, we will offer an hour and a half of drawing, creating, and listening ( and even programming for participants who are interested.). The next hour will be dedicated to each group working independently to determine a performance practice for their respective instruments in a chamber music / improvisation format. Afterward, each group will present a 5-minute demo of what they have been working on. The facilitators and the other workshop participants will offer feedback. The remainder of the workshop time will be used to address any additional instrument needs, transitions, performance practices, and other relevant topics.

intersection of our interests and identities. EMKVLTL functions as the core of our open ensemble, The International Witch Collective.

## **Panel Discussion: Inclusive Co-Creation in and of Online Sonic Spaces [1:45pm – 3:15pm, Room 9]**

**Patricia Alessandrini, Hans Kretz, Sophia Alexandersson, and Chris Chafe**

### **Biographies**

Patricia Alessandrini is a composer/sound artist creating compositions, installations, and performance situations which are most often interactive and theatrical. Her works have been presented in the Americas, Asia, Australia, and over 15 European countries. She is also a performer and improviser of live electronics. She holds two PhDs, from Princeton University and the Sonic Arts Research Centre (SARC). She has taught Computer-Assisted Composition at the Accademia Musicale Pescarese, Composition with Technology at Bangor University, Sonic Arts at Goldsmiths College, and is Assistant Professor of Composition at Stanford University since 2018, where she performs research on embodied interaction, immersion, and instrument design for inclusive performance at the Center for Computer Research in Music and Acoustics (CCRMA). She is a member of the international board of ShareMusic & Performing Arts. In 2020, she and her collaborators were awarded the NIME Accessibility Award. Her works are published by Babelscores, and may be consulted at [patriciaalessandrini.net](http://patriciaalessandrini.net)

Hans Kretz is a conductor, pianist, researcher and author. He holds PhDs in Music and Philosophy from the University of Leeds and the University of Paris 8 Vincennes-Saint-Denis respectively. His research interests include philosophy of culture, aesthetics, philosophical anthropology and philosophy of technology. His writings have appeared in the *Recherches*

### **Abstract**

Since the outbreak of the global COVID-19 pandemic in 2020, online spaces mediated by technologies such as JackTrip have played a vital role in collective music-making and dissemination. As the pandemic continues, these online music-making spaces remain a valuable resource for several key reasons: 1) they offer a safe alternative to in-person experiences for those who are at high risk of serious outcomes from a COVID infection; 2) they expand music-making opportunities for people with limited mobility or with home care responsibilities; 3) they

d'Esthétique Transculturelle series of L'Harmattan, and in the Cahiers Critiques de Philosophie. He is a Lecturer at Stanford University, where he currently conducts and directs the Stanford New Ensemble. He has used JackTrip with the Stanford New Ensemble since before the global pandemic started in 2020, and was one of the first ensemble directors at Stanford to integrate JackTrip into rehearsals and concerts in Spring 2020. He has presented his research on networked performance on several occasions, including at the IRCAM-NYU Forum, 2022. His article on networked performance as a collective space for creation and student engagement will be published this year by Routledge in 'Rethinking the history of technology-based music' (University of Huddersfield, 2022-23).

Chris Chafe is a composer, improviser, and cellist, developing much of his music alongside computer-based research. He is Director of Stanford University's Center for Computer Research in Music and Acoustics (CCRMA). In 2019, he was International Visiting Research Scholar at the Peter Wall Institute for Advanced Studies The University of British Columbia, Visiting Professor at the Politecnico di Torino, and Edgard-Varèse Guest Professor at the Technical University of Berlin. At IRCAM (Paris) and The Banff Centre (Alberta), he has pursued methods for digital synthesis, music performance and real-time internet collaboration. CCRMA's jacktrip project involves live concertizing with musicians the world over. Online collaboration software and research into latency factors continue to evolve. An active performer either on the net or physically present, his music reaches audiences in sometimes novel venues. An early network project was a simultaneous five-country concert was hosted at the United Nations in 2009. Chafe's works include gallery and museum music installations which are now into their second decade with "musifications" resulting from collaborations with artists, scientists and MD's. Recent work includes the Earth Symphony, the Brain Stethoscope project (Gnosisong), PolarTide for the 2013 Venice Biennale, Tomato Quintet for the transLife:media Festival at the National Art Museum of China and Sun Shot played by the horns of large ships in the port of St. Johns, Newfoundland.

continue to offer an ecological method of connecting across distances; and 4) they offer their own distinct characteristics, proper to the online medium, including possibilities for sound transformation and co-creation in a horizontal, shared virtual space.

As these online spaces continue to propagate for these motivations, two questions arise: how can these spaces be rendered more accessible to Disabled music-makers, for whom online performance may be a particularly precious resource, and how can these spaces be more effectively used for co-creation? Part of this discussion will consist of considering how multimodality can be introduced into online experiences, for instance through the use of biosensing and haptics.

We propose to address these issues from a range of perspectives, including Disabled digital musicians and representatives of organizations from the non-profit sector working in the areas of co-creation and inclusive performance. These experts will include partners in two current research

projects: Considering Disability in Online Cultural Experiences (The Changing Human Experience project) and Multisensory, User-centered, Shared cultural Experiences through Interactive Technologies (MuseIT), an EU Horizon project, participating in-person and remotely (as is appropriate for the nature of this project).

## Historical Instruments of Music / Science [1:45pm – 3:15pm, Room 6]

### Christina Dörfling

“Switched and Wired: On the Making of Early Electronic Musical Instruments”

#### Abstract

The advent of electrical and electronic components not only changed the way music and sound were reproduced and transmitted, but also the ways in which they were generated and designed. From around 1900 electrotechnical components and circuits previously used in communications technology migrated into music. As novel materials, they got explored, recombined, and rededicated for genuinely musical purposes. This required not only the integration of knowledge hitherto remote from music, but also an engagement with the material itself: Winding and bending wires, stripping and soldering components, designing and trying out circuit configurations. It turned out early: working on circuits means working on sound.

One of the places to provide space for this new kind of sound work was the 1928 founded Radio Research Lab (*Rundfunkversuchsstelle*) at the Berlin College of Music, which was shut down after the takeover of the Nazi party in 1933. Here, the engineer Friedrich Trautwein, composer Paul Hindemith and student Oskar Sala developed the electronic instrument *Trautonium*. While previous studies on Trautonium’s history have mainly highlighted the discursive backgrounds, I draw upon the

#### Biography

Christina Dörfling is a visiting scholar at the Institute for Music and Media Studies at Humboldt University Berlin (department Viktoria Tkaczyk) and will be visiting associate professor (Vertretungsprofessorin) for Sound Studies and Musicology at the University of Bonn in the summer term 2023. She was awarded a doctorate in 2019 at the Berlin University of the Arts with the thesis *Der Schwingkreis. Schaltungsgeschichten an den Rändern von Musik und Medien* (Fink Verlag:

two earliest versions of the instrument (1930/32) to direct the view into its circuits themselves.

Based on extant instruments (collection at Deutsches Museum München), their circuit diagrams, historic sound samples and patents, I will outline the Trautonium's development at the Radio Research Lab as an interplay of sound specific material research, aesthetic ideas and circuit design. In doing so, I also reflect on how my media archaeological studies gave me an understanding of early music electronics. The construction of an apparatus combining Theremin, Trautonium and Ondes Martenot, which I will demonstrate as part of my presentation, brought me closer to my object of study and let me think about potentials and needs for circuit-sensitive sound research, which I would like to outline finally.

## Lee Cannon-Brown

### "The Global Turn, Historicized: Henry Cowell, the Rhythmicon, and Instruments of Global Music Theory"

#### Abstract

Music theory can be expressed not only linguistically, but also materially, in the form of what Alexander Rehding (2016) calls "instruments of music theory." In recent scholarship, instruments of music theory have been studied in relation to expansive geographical networks, following the history of music theory's "global turn" (Raz et. al. 2019; Hu 2019; Rehding 2022). And yet despite this global turn, instruments remain persistently regarded as nodes *within* global networks, rarely assumed capable of themselves embodying global perspectives. My paper shows how musical instruments can crystallize global histories of theory from the past, nuancing and historicizing the global turn today (Beckert and Sachsenmaier 2018).

As a case study, I turn to 1930s America, where Henry Cowell developed a novel instrument called the Rhythmicon. Cowell's Rhythmicon sonified whole-number ratios as "polyrhythms," so that when its "3" and "2" keys were held, for instance, a 3-against-2 hemiola would sound. As scholars have acknowledged, Cowell intended his Rhythmicon to teleologically "advance" the history of Western music theory, unlocking more complex rhythmic patterns for modern composers (Sachs 2012; Rehding 2016). And yet as early as 1927, Cowell also conceived of rhythmic theory in a

2022; engl. translation: *The Resonant Circuit. Circuit Stories at the Interface of Music and Media*). She was research assistant at the University of Arts Berlin and at the college of Music Weimar and was awarded fellowships at the Deutsches Museum München and the Max-Planck-Institute for the History of Science.

#### Biography

Lee Cannon-Brown is a doctoral candidate in Music Theory at Harvard University. He was a lecturer at the University of Massachusetts Amherst for Fall 2022, and he is a former chair of the Society for Music Theory's Music and Philosophy Interest Group. Cannon-Brown's dissertation re-evaluates the history of post-tonal music theory in the first half of the twentieth century, excavating a global intellectual network that spanned Russia, Europe, the United States, and Latin America. His dissertation has been supported by the Paul Sacher Stiftung, the Social



global historical context, claiming that rhythm had been developed “further” in the non-West than in the West (Cowell 1927).

Cowell’s universalist notion of “progress” in rhythmic theory reveals itself clearly in archival sources, especially his unpublished treatise of the mid-1930s, “Rhythm.” Further archival sources connect Cowell’s rhythmic universalism to his concept of a global history of music theory, which he shared with his wife, Sidney Cowell. In 1937, Henry wrote to John Cage that his Rhythmicon could explicate complex Hindustani rhythmic patterns, and later, in 1954, Sydney taught a course in rhythm at The New School, where she rooted rhythm complexities in non-Western cultures in a theory of polyrhythms.

While most today would balk at its intended universalism and developmentalism, Cowell’s Rhythmicon nevertheless provides useful lessons: it shows that the global history of music theory can itself be historicized, and that global perspectives inevitably reflect the locations, assumptions, and priorities of those who adopt them.

## Henry Burnam

### “Gestalt Psychology and Erich von Hornbostel’s Instruments of Music Theory”

#### Abstract

In his 1913 “Melodie und Skala,” comparative musicologist Erich von Hornbostel asserted that European “harmony, notation, and keyboard [...] work together to make our *Tonsystem* appear as a tool supplied to the musician with which to ‘compose,’ more or less as one might assemble a mosaic out of colorful little blocks.” Unlike the Hornbostel-Sachs system, which classifies instruments by method of sound production, Hornbostel’s approach in “Melodie und Skala” foregrounds the epistemic role of instrumental interfaces. The essay combines technological pessimism with a polemic against the limits of European musical thinking: techniques like those that characterize European “musical culture,” Hornbostel asserts, reinforce “the unpsychological notion that music is made up of tones.”

My paper investigates Hornbostel’s category of the “unpsychological” by situating it within the intertwined histories of “Berlin School” comparative musicology and Gestalt theory. I begin by identifying a methodological shift in early comparative musicology. Beginning in 1909, Hornbostel rejected the scale-centric approach of Alexander Ellis, Carl

Sciences and Humanities Research Council of Canada, and the Society for Music Theory, and his work has been published in *Music Theory Spectrum*.

#### Biography

Henry Burnam is a Ph.D. candidate in music theory at Yale University. His dissertation project investigates the intertwined histories of comparative musicology and Gestalt psychology in early twentieth-century Berlin. His other research interests include meter, the notation and analysis of late-medieval polyphony, and the phenomenology of music. Henry is one of the organizers of the Medieval Song Lab at Yale.

Stumpf, and of his own earliest publications. Instead, influenced by Benjamin Ives Gilman's "Hopi Songs" (1908), in which Gilman claimed to have identified "methods of composition and performance which replace and exclude reliance upon a scale," Hornbostel argued that the comparative study of pitch structure needed to approach motives and melodies as undivided wholes that are prior to fixed *Tonsysteme* (Hornbostel 1909). Next, I connect this shift to psychologist Max Wertheimer's first two publications that invoke the Gestalt concept: "Musik der Wedda" (1910), an article on the music of a Sri Lankan Indigenous group; and "Über das Denken der Naturvölker: I. Zahlen und Zahlgebilde" (1912), which attacked the "dogmatic-European" view that "reality-abstract" combination of arbitrary objects represented the most effective or highly-developed form of numerical thinking (Wertheimer 1912b). I then link Wertheimer's theoretical orientation in this study to Gestalt theory's mature approach to perception, and conclude by suggesting that, despite their radical sheen, Wertheimer and Hornbostel's radical-seeming polemics on the limits of European thinking on number and music ultimately reinforced the colonial *Naturvölker/ Kulturvölker* binary.

## **Workshop: The "Polymorphic Instrument" in Georgia Spiropoulos's *Roll... n' Roll... n' Roll* for Harp and Live Electronics [2:45pm – 3:45pm, Paine Hall]**

**Robert Hasegawa, Alex Tibbitts, and Frédéric Le Bel**

### **Biographies**

Music theorist and composer Robert Hasegawa joined the faculty of the Schulich School of Music of McGill University in 2012. His research interests include contemporary music, spectralism, psychoacoustics, timbre, and orchestration. Recent projects include studies of music by Georgia Spiropoulos, Rebecca Saunders and Pascale Criton, writings on extended just intonation and other microtonal techniques, a chapter on the role of creative constraints in contemporary compositional practice, and applications of transformational theory to the analysis of music by George Benjamin and Georg Friedrich Haas. He is a co-editor of the forthcoming *Oxford Handbook of Orchestration Studies*.

### **Abstract**

Georgia Spiropoulos composed *Roll...n'Roll...Roll* for solo harp and electronics in 2015 as a commission by IRCAM and Radio France for the harpist Hélène Breschand. "In this cycle of pieces," Spiropoulos writes, "the classical harp is a polymorphic instrument, at once acoustic and 'prepared' by the computer. The harp

California-born, Montréal-Based Alex Tibbitts is The Bionic Harpist, quite literally. Classically trained, Tibbitts has since been dedicated to new forms of gestural and digital augmentation of the harp. Through real-time processing during her performances, she joins her instrument in a symbiotic dance, a metaphorical image made even more relevant by the fact that half of her body contains metal. Tibbitts holds a Masters in Interpretation as well as a Diploma in Orchestral Repertoire from l'Université de Montréal, and is a member of McGill University's Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT) since 2016. She is a founding member of Ensemble ILÉA, an electroacoustic improvisation ensemble, and has participated in writing academic articles dedicated to her area of research, such as *Gestural Control of Augmented Instrumental Performance: A Case Study of the Concert Harp* (2018).

Frédéric Le Bel graduated in 2011 at the University of Montreal where he studied composition with Philippe Leroux. In 2013, he completed a master's degree from the Conservatory of Music in Montreal under the supervision of Serge Provost. From 2014 to 2019, he attended both Ircam's cursus and obtained a PhD degree from the same institution for working on the development and the integration of 'smart' algorithms by and for sound design and music composition. Frédéric has also participated in several international academies such as the Impuls Academy in Austria and the ManiFeste Academy in France. His music has been awarded several times in Canada and has been performed in various international festivals such as the New Music Darmstadt in Germany, the Matera Intermedia in Italy and the Cluster New Music + Integrated Arts in Canada to name a few. His repertoire explores instrumental, acousmatic and mixed music. From soloist to symphonic orchestra, he has worked with numerous recognised artists such as Ricardo Descalzo, the TANA String Quartet, the Divertimento Ensemble, the Klangforum Wien and the CMM Orchestra.

becomes both a spatial instrument (space of listening, space of composition, an intimate sonic space projected outward) and a micro-orchestra, an archaic instrument and a sonic mobile." This workshop will explore aspects of compositional process, performance interactions, and instrumental transformations across the five movements of the piece: *Tourbillon*, *Shig*, *Mobile*, *Texture*, and *Paris qui crie*.

The piece began with a "studio experimentation phase," allowing the composer, harpist, and computer music designer to explore various sounds, musical ideas, and electronic transformations. Many of the work's unusual playing techniques were developed at this stage, and sound samples were collected for later use in the piece. Computer-aided composition with the software application OpenMusic is an essential part of the next stage of composition, resulting in a written score plus an interactive electronic "patch" using Max/MSP and Antescofo. Through interactions with the electronics, the harp's sounds are transformed and

spatialized in complex and overlapping ways. As the composer states, "In working with the harp, I was very interested in the opposition between this ancient instrument and a music technology which can augment, respect, or hide the identity of the instrument. The harp is transformed: it becomes a classical harp, a harp orchestra, a toy, or a strange unknown instrument."

## **Elemental Media as Musical Technoculture [3:30pm – 5:00pm, Room 9]**

### **Xenia Benivolski**

"The Sky's Like a Bell—The Moon Is Its Tongue"

#### **Abstract**

In the first half of the 20th century, some Europe countries resorted to the melting of church bells: mostly for the production of weapons citing a shortage of metal. But the Soviet Army also produced statues of Lenin and Stalin from the objects, turned religious spaces into civic spaces such as circuses and zoos, and restricted religious holidays and practices. The practice was seen as spiritually and politically demoralizing, and after the war, In Latvia, Lithuania and Croatia, Lenin monuments were melted and hundreds of church bells and other objects were again produced from the metals.

With a historical focus on Eastern Europe and Soviet Central Asia, this research details a number of transformative moments carry metal from one form into another: from bells to monuments, to weapons, and bells again. Accounting for these specific moments of transformation, it illustrates how the sound of the standard church bell has been articulated by the demise of the Ottoman empire and the rise of the European union. By tracing the origin of bells, carillons and their

#### **Biography**

Xenia Benivolski curates writes and lectures about sound, music and visual art. Most of her work concerns borderlines between the East and the West. Currently she is working with the archive of Latvian outsider artist Zanis Waldheims and co-producing a first monograph for the artist in 2023. She is also curating You Can't Trust Music at e flux.com, a research project connecting sound-based artists, musicians and writers to explore together the way

supporting infrastructures, this research is also situated in the framework of soundscapes, religious community, resistance, labour and holy spaces. I speculate on the material and spiritual qualities shared by the religious icon and the political monument, and the sounds that signal that transformation by mapping the different alloys that constitute these holy instruments. The paper responds to the variant waves of revolutionary impulse by making connections between the nature of monumentality and the destruction of Soviet monuments and their subsequent transformation, as well as origins of violence and Russian colonialism, drawing a direct line to from the fall of the Ottoman Empire to the fall of Communism, to today's events around anti-colonial frameworks. With that, it suggests that some new perspectives on the potential of sound may be situated within the field of history and archeology.

that landscape, acoustics and musical thought contribute to the formation of social and political structures. Xenia contributes to the Worker as Futurist project at Lakehead University and teaches art criticism at OCAD University. She publishes in various art and music publications, and academic journals.

## **Bailey Hilgren**

### **"A Gut-Wrenching Sound: Gut Strings, Warm Bodies, and Rehydrating Viscera"**

#### **Abstract**

This paper considers the ways the materiality of gut strings and symbolic ideas about animal disposability and consumption of music are entwined. As scholars in critical environmental justice, ecofeminist, and Black studies have shown, such beliefs about animal bodies have helped constitute Western humans' attitudes of autonomy from and superiority over animals, non-human environments, and othered humans treated as less-than-human. To explore these issues, I examine the often hidden material origins and production of gut strings, which are processed animal intestines, a slaughterhouse byproduct. I also explore the ways gut strings' prized "warm" and "lively" aesthetic qualities are a consequence of their materiality as highly flexible and resonant yet unpredictable and fragile substances, all due to their origins in animal bodies. Such entwined material and aesthetic qualities are typically distanced by gut manufacturers and users, however, through both increased physical distance between slaughterhouses and gut string manufacturers over time as well as deployment of the concept of "naturalness" to obscure the violence that treats animal lives as disposable. Finally, in an effort to highlight alternative conceptualizations of gut string materiality, I consider the absorption and swelling of the strings caused by moisture from environments and finger oils, resulting in material changes that partly rehydrate the dried animal organs and

#### **Biography**

Bailey Hilgren is a doctoral student in ethnomusicology at New York University. Her research interests include intersections of music and sound with ecofeminist and queer ecologies, environmental justices, and animal studies. She recently completed a thesis on settler colonial listening practices in the Boundary Waters Canoe Area Wilderness in her home state of Minnesota. She holds an M.S. in environmental studies from the University of Oregon, an M.M. in historical musicology from Florida State University, and an undergraduate degree in biology and music

result in unruly music performance elements that cast off human attempts at control.

performance from Gustavus Adolphus College.

## **Kevin Toksöz Fairbairn**

### **“Sounding Decay: Instruments, Craft, and Material Agency”**

#### **Abstract**

This paper will discuss and demonstrate musical instruments constructed out of unfinished and abandoned brass, string, and reed instruments— instruments that I have built from scratch and refashioned into hybrid musical bodies bridging disparate instrumental families. Synthesizing both traditional and imaginary designs, these instruments explore acoustic phenomena innate to the materials themselves while simultaneously developing new effects and techniques through their integration with other instrumental de- and re-constructions. By investigating the complex roles of interference and disjuncture in craft and organology, these instruments help elucidate the convergences between construction and performance, and between human and nonhuman sounding agencies.

In tracing the twin trajectories of craftsmanship and artistic performance, I will examine how elements of instrument building fuse and interact with subsequent sounding musical performances. By virtue of being rooted in ‘broken’ and ‘faulty’ materials discarded during the construction process, these instruments testify the traumatic histories of their long, messy construction. These disjointed instrumental ontogenies pose questions about how instruments are formed, and how their bodies can be reimagined and hijacked. As discarded instrumental materials shape which new instruments and acoustic possibilities can emerge, they show how instruments help to construct themselves—holding and utilizing agency in their relationship to the world and to the resonances that they provoke therein.

By reclaiming their material agency, these instruments help reveal how the discontinuous spatiotemporal unfolding of instrument building can facilitate fresh and unexpected interfaces, relationships, and “acoustemologies” (Feld 1996). Following Alexander G. Weheliye’s call for “phonographic” practices that enact “thinking sound/sound thinking” (Weheliye 2005), this paper examines the intertwining of technology and culture, exploring how the coalescence of material and human agencies produce “sounding situated knowledges” (Goh 2017). By braiding

#### **Biography**

Kevin Toksöz Fairbairn is a sound artist and musician working around the edges of installation, improvisation, composition, and craftsmanship. He is an accomplished instrument builder and performs on his own hybrid creations at concert halls, festivals, and universities throughout Europe, Asia, and North America. He publishes about sound studies, artistic research, and musicology, and his book *dis/cord: Thinking Sound through Agential Realism* is available from Punctum Books.

together insight from physical craftsmanship and theoretical research, I hope to clarify the intricate and intimate entanglement between sound and the vast networks of bodies and agencies that precede the sounding moment itself, stretching backwards through time and space in chaotic, fragmented patterns of agency, causation, potential, and decay.

## **Mapping Networks of Audio-Technical Discourse [3:30pm – 5:00pm, Room 6]**

### **Pablo Dodero**

“Translanguaging in Mexican Electronic Music Instrument Designers”

#### **Abstract**

The technical language surrounding electronic music instruments (EMIs) is continually expanding with their increased popularity and use. The field’s prioritization of English, the most commonly used language among manufacturers, has established it as the lingua franca of interface labels and marketing materials. This presents a language barrier for non-native speakers and brings up questions of its effects on creativity and imagination. Recent scholarship surrounding EMIs has focused on the desired outcomes and motivations regarding their design, their role in performance and improvisation, or their evolution with regards to traditional music instruments. However, there is no research surrounding the effect of English as the de facto language of interfaces, labels, and marketing materials. New generations of independent electronic music instrument developers in countries like Mexico employ a mix of English and Spanish to label and describe the features and functions of their products. This is due to a lack of terminology in Spanish coupled with a desire to compete in the global market. The flexible way in which companies in Mexico engage with languages disrupts the hegemonic pervasiveness of English, allowing for a plurality of sonic imaginaries to emerge in a globalized market structure. My paper highlights current examples of electronic music instruments built and designed in Mexico by companies like Paradox Effects and how they engage with English while actively searching for creative ways to enrich audio jargon in Spanish. Using objects or artifacts as and marketing collateral hermeneutic, I delineate a methodology that considers perspectives from fields like critical

#### **Biography**

Pablo Dodero is a musician, writer, and arts promoter from Tijuana, Mexico currently pursuing his PhD in Integrative Studies at the University of California San Diego. His professional background situated in the cross-border region working in the music retail industry as an instrument buyer and repairperson, as well as a performer of experimental electronic music, led him to pursue graduate studies in the field of musicology and sound studies. His research focuses on electronic music instruments, specifically their interface and design along transnational circuits, as well as institutional histories of experimental and electronic musics within Mexico. Dodero is a DIY touring musician and has performed

linguistics and science and technology studies (STS) to highlight the role English plays in creativity and sonic imaginaries for the non-fluent.

electronic music under the name *Adiós Mundo Cruel* and *Les Temps Barbares* in the underground rave scene in the U.S. and Mexico.

## **Sarah McDonie**

### “The Whole Earth Catalog and Performance Art: Tools for Countercultural Living”

#### **Abstract**

“We are as gods and might as well get good at it.” This declaration opens every edition of the *Whole Earth Catalog: Access to Tools*, founded by Stewart Brand and issued in the United States from 1968-1972 and then intermittently until 1998. With his catchy opener, Brand positioned his catalog as a tool for countercultural living that equipped readers with knowledge to shape their own environments and explore alternative ways of being. The *Catalog's* emphases on holism, connectivity, and expanded consciousness were shared by many contemporary artists and musicians such as John Cage, Pauline Oliveros, and Gerd Stern. This is not a coincidence. Brand worked closely with artists throughout his career including members of USCO, The Grateful Dead, and Brian Eno.

While existing scholarship on the *Whole Earth Catalog* addresses its importance to the 1960s American counterculture and environmentalism, little work has been done on the relationship between the *Catalog* and its contemporaneous art scene. This paper addresses this lacuna. I have found that the *Catalog* is not only motivated by shared philosophical commitments with performance artists, but it's physical structure and the way readers engage with it is very much like a musical or performance score: both make process visible, create space for possible outcomes, and inspire creative, active engagement with their audiences. When we bring the *Whole Earth Catalog* into the same discursive space as performance, we gain insight into the processes, structures, and cultural value of both the *Catalog* and experimental performance art.

In this contribution, I will demonstrate that the *Whole Earth Catalog's* structure, philosophical underpinnings, and cultural function mirror the goals of late twentieth century performance artists working in the United States during the 1960s and 1970s, such as Meredith Monk and the multimedia group USCO. Drawing on archival materials and the work of

#### **Biography**

Sarah Adele Kirkman McDonie is a PhD candidate in musicology at Indiana University Bloomington and has a minor in media studies. Originally from St. Louis, Missouri, she studied music education at DePauw University and completed her Master of Arts in Musicology at Indiana University. Her research interests include exploring non-human agency, ecology, and the intersections of cybernetics and experimental art. Sarah is also co-owner of a custom music composition business, Opus One, LLC. When she is not doing professional work, Sarah enjoys scuba diving, good food, running, swimming, weightlifting, and going on adventures with her husband, Brian, and Manford, their charismatic Shetland sheepdog.



Gregory Bateson, Lawrence Halprin, Fred Turner, and Erik Davis, I will show that the *Whole Earth Catalogs* and experimental performance art's shared project was to create opportunities for audiences to reframe their perception of reality and to become "as gods" in shaping their own worlds.

## **Mikkel Vad**

### "The ECM Record Label, Manfred Eicher, and Discourses of European Auteurism in Jazz Record Production"

#### **Abstract**

The German record label ECM (Edition of Contemporary Music) has, since its founding in 1969, developed a distinctive sonic and visual aesthetic, in which US critics and listeners have identified a European approach to jazz and record production. Charting ECM's US reception in the 1970s, the paper examines how US critics and musicians paid particular attention to the recording process and positioned the label's producer, Manfred Eicher, as a European "auteur" genius. This discourse foregrounded Eicher as one of the first jazz producers to employ—in the words of his contemporary, Brian Eno—"the studio as compositional tool." Such discourses of technology and aesthetics framed ECM as bringing a particularly European artistic sensibility to record production, which even US musicians themselves contrasted with a commercialism supposedly endemic to the US music industry. In close readings of record reviews and interviews, the paper examines how US critics and musicians associated ECM and its Europeanness with Western art music, high-art cultural capital, and whiteness, often juxtaposing this with essentializing ideas of African American blues and improvisation. The ECM label's European identity was not simply created in Germany and exported to the United States but was created via transnational infrastructures of record production and the US imagination of Europe. Indeed, ECM's status as a *European* label played a significant part in its rise to prominence in the US and its continued status as, perhaps, the most prestigious record label in the global jazz industry today and Eicher as the genre's most renowned producer. The paper also argues that focusing on music production and the auteurism of the record producer, allowed white, middle-class American listeners and musicians, to legitimize white jazz as viable alternative to interpretations of jazz as a strictly African American music. Tracing such histories of record production shows us the shifting understanding of music technology and

#### **Biography**

Mikkel Vad is visiting assistant professor of music at Bucknell University, where he teaches courses on jazz, popular music, and sound studies. His research and publications focus on questions of race, cultural memory, media, and cultural belonging. He teaches problem-based courses on music, cultural theory, historiography, and media where students learn to think critically about music and the arts across genres, time periods, and cultures.

the role of the record producer in 1970s jazz culture was mediated by longer histories of aesthetic value and hierarchies.

## **Workshop: HYDRA System [4:00pm – 5:00pm, Paine Hall]**

### **Hans Tutschku**

#### **Biography**

Hans Tutschku is a composer of instrumental and electroacoustic music. In 1982 he joined the "Ensemble for intuitive music Weimar" and later studied theatre and composition in Berlin, Dresden, The Hague, Paris, and Birmingham. He collaborated in film, theatre and dance productions, and participated in concert cycles with Karlheinz Stockhausen. Since 2004 he directs the electroacoustic studios at Harvard University.

Improvisation with electronics has been a core activity over the past 35 years. He is the winner of several international competitions, among others: Hanns Eisler Preis, Bourges, CIMESP Sao Paulo, Prix Ars Electronica, Prix Noroit, Prix Musica Nova, ZKM Giga-Hertz, CIME ICEM and Klang!. In 2005 he received the culture prize of the city of Weimar. Besides his regular courses at the university, he has taught international workshops for musicians and non-musicians on aspects of art appreciation, listening, creativity, composition, improvisation, live-electronics, and sound spatialization in more than 20 countries.

#### **Abstract**

Interpretation of electroacoustic music developed since the 1950<sup>s</sup>, when the first loudspeaker orchestras emerged. A musician controls with a sound diffusion desk (mixing console) from the middle of the hall the dynamically changing levels of the loudspeakers.

Choices need to be made on which loudspeakers specific passages of the composition are to be heard and how the composed spatial qualities can be projected with the given loudspeaker system in the current concert hall.

The workshop will explain the Hydra diffusion system and the connection between musical analysis and interpretative choices. The participants can witness the impact of performed gestures by comparing simple stereo playback and dynamic interpretation.

## KEYNOTE 2: Interfaces [5:30pm – 6:30pm, Yenching Auditorium]

### Tara Rodgers and Jonathan Sterne

“Interface Writing Games: Aesthetics, Technics, Power”

#### Biographies

Tara Rodgers (Analog Tara) is a multi-instrumentalist composer, mix engineer, and historian of electronic music. She is the author of *Pink Noises: Women on Electronic Music and Sound* (2010) and numerous essays on sound and music technologies. *Pink Noises* is recognized as “an absolutely singular undertaking... changing the ways we think about electronic music” (Cycling ’74). Her music is described as “assertive work, bold in the precision and subtlety it takes to mix such signals with thrill and grace and restraint” (NPR Music). Originally from New York, she is now based in the Washington, DC, area.

Jonathan Sterne teaches in the Department of Art History and Communication Studies at McGill University. He is author of *Diminished Faculties: A Political Phenomenology of Impairment* (Duke 2021); *MP3: The Meaning of a Format* (Duke 2012), *The Audible Past: Cultural Origins of Sound Reproduction* (Duke 2003); and numerous articles on media, technologies and the politics of culture. He is also editor of *The Sound Studies Reader* (Routledge 2012) and co-editor of *The Participatory Condition in the Digital Age* (Minnesota 2016). He is working on a series of essays on artificial intelligence and culture, and with Mara Mills, he is writing *Tuning Time: Histories of Sound and Speed*.

#### Abstract

Drawing inspiration from Lauren Berlant and Kathleen Stewart’s *The Hundreds* as well as Matthew Goulish’s *39 Microlectures: In Proximity of Performance*, Tara Rodgers and Jonathan Sterne have been playing interface writing games together. In this talk, we will explore interfaces through bite-sized forays. We will reflect on what an interface is in the age of electronic and digital instruments; the pleasures and pitfalls of knobs, menu diving and unmarked button combinations; whether relationships between physics and acoustical experience can truly be arbitrary; tech industry imperatives; and the different political axes that cut across interfaces as cultural techniques and technologies.

## FRIDAY EVENING

### Concert 2a: Holden Chapel, 8:00pm – 11:00pm

#### EMKVLT Ensemble

##### *Devised Improvisation*

##### **Program Note**

EMKVLT is a band led by three womxn who use the physical properties of the electromagnetic spectrum to create installations, performances and recordings. Using electronic feedback, audio speakers, various kinds of microphones/pickups, and resonant objects of all shapes and kinds, we summon the feminine spirit of electromagnetism, aka the Goddess of the Electronic Medium. Drawing upon the history of electronic sound and seance, as well as the cutting-edge technologies of artificial intelligence and physical computing, we create embodied sonic experiences. We have a flexible membership inclusive to all peoples who are willing to open themselves up to this spirit. In terms of current trends in audio technology, we invoke a feminist response to the masculinization of the music industry, audio engineering, and to the artistic spaces of sound arts in general. Our newest instruments, the Bareémins, functions as a score via the antenna embedded in the image on the page.

##### **Biographies**

Formerly known as Bunker, EMKVLT consists of Sofya Yuditskaya, Margaret Schedel, and Jess Rowland. They are a regular fixture on the New York City improvisation scene, with performances at H0L0, Harvestworks, Improvisation Summit, Putty's Corination, NYU, Stony Brook and SummerCamp. Individually the musicians have internationally recognized careers; EMKVLT is the intersection of our interests and identities. EMKVLT functions as the core of our open ensemble, The International Witch Collective.

#### Patrick Hartono

##### *Ciung Wanara (2023)* audiovisual performance

##### **Program Note**

This piece takes a novel approach to audiovisual composition by exploring the use of hand gestures as a primary means of interaction and compositional method. The approach is based on the adaptation of the Sabetan technique of Indonesia Wayang Kulit, a traditional form of shadow puppetry. The goal is to demonstrate embodied audio-visual

##### **Biography**

Patrick Gunawan Hartono, born in Makassar, Indonesia in 1988, is an electroacoustic composer and audiovisual artist with a prestigious

interaction through this novel approach. Sabetan technique is expressive gestures executed by the puppeteer through the animated actions of the puppets in a wayang performance. These gestures are in conformity with the characterization and ambience of the scene. In the context of this piece, the embodied interaction can be characterized as a performative act, with the simultaneous creation of audio and visual elements that respond to the performer's gestural movements. This approach draws on Michael Chion's concept of "added-value." To facilitate this interaction, a choreographed hand movement was devised incorporating the gestural technique of "Sabetan." This strategy serves as a mode for the performer to engage with the computer in real-time during the performance, utilizing a depth camera with a machine learning hand recognition algorithm to capture the performer's kinesthetic hand movements. This concept was incorporated into the development of an interactive music system for Gestural-Based Audiovisual Composition, *Ciung Wanara*, as part of my doctoral research. I devised an interactive music system that integrates the Sabetan technique of *Wayang Kulit* (leather shadow puppetry) and employs supervised machine learning algorithms to scrutinize gestural inputs from the performer. Additionally, the Polymorphism Sound SYNTHESIS method I developed during my doctoral research was implemented into the musical component of the system.

"*Ciung Wanara*" is an interactive audiovisual composition inspired by Indonesian shadow puppet battles. The performance takes a semantic approach, featuring two distinct rooster avatars that respond in real-time to the performer's gestures. The performer uses two avatars controlled by their hand movements to recreate the tale of *Ciung Wanara*, a wise king and skilled cockfighter who triumphs over an evil sorcerer. The Sabetan technique of Indonesia *Wayang Kulit* and the *FluComa* machine learning library allows the performer to simultaneously generate and control digital sound synthesis, multi-channel spatialization, and visuals.

The presentation of two avatars with a clear narrative, generated by the performer's hand gestures, creates a unique audio-visual experience not commonly seen in conventional forms of audiovisual composition. This leads to a uniquely immersive and interactive experience not only between the performer and composition but also with the audience.

academic background. As a proud alumnus of the Rotterdam Conservatory, Patrick graduated Cum Laude with a BMus in Composition while pursuing a minor study at The Institute of Sonology. He continued his academic journey by earning an MMus in Sonic Arts from the University of London, Goldsmiths and completing a Live Electronic Course at IRCAM, Paris.

Intrigued by the intersection of technology and scientific methodologies, Patrick employs these tools to fuel his creative process. His artistic interests span 3-D sound spatialization, analog/digital synthesis, psychoacoustics, and visual music. Patrick's innovative compositions often integrate traditional Indonesian musical instruments, computergenerated sounds and visuals, and field recordings, which he manipulates using mathematical rules, real-time interactions, and controlled random operations.

Patrick's works have graced the international stage at renowned festivals and conferences, including ICMC, YCMF, WOCMAT, Sound Bridge Festival, ZKM, IRCAM, NYCEMF, Sound Image, ACL,

Gaudeamus, Sonorities Festival (SARC), APMC, BEAST, CCRMA (Stanford), KEAMSAC, NIME, iiicon (Harvard), Ars Electronica, and more. Currently based in Melbourne, Australia, Patrick is pursuing a doctoral degree at the University of Melbourne while actively engaging with the national and international computer music community.

## **Cecilia Suhr**

*Humanity: From Survival to Revival* (2022) for audiovisual performance

### **Program Note**

*Humanity: From Survival to Revival* is an award-winning (2023 Best of Competition Award from the Broadcast Education Association) interactive audio-visual performance work that depicts the transformation of the dystopian state of humanity to utopianism in both the visual and sonic realms by including the faces of live audiences as part of the multimedia performance. Not only do audiences play an interactive survival game via microphone (sound interactive), but the collaborative efforts are meant to represent saving humanity through collective transformation, healing, and renewal. In act one, audiences are asked to stand in front of the camera and contribute their facial images to build a digital gameboard. As their faces are added, they become a live electronic instrument by triggering the sound files. In act two, audiences are asked to play an interactive survival game based on their free speech. Audience members can either exhale a breath into the microphone, signifying giving CPR to another person to save a life, or they can say positive words into the microphone; speaking a positive word affirms the power of speech, imitating a scenario where people in crisis can lift other people's spirits to help them stay alive. To encourage participation, when there is no sound from the audience member (no effort to save each other), the audience member's face is randomly dropped from the screen to signal the demise. The sound going into the microphone further affects the faces by temporarily blurring them. In act three, the chaos gradually calms down, and those (audience's faces) remaining on

### **Biography**

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, DML Research Grant Award, Pauline Oliveros Award from New Music Competition (IAWM), Silver Medal Winner from Cambridge Music Competition, Bronze Medal Winner from Global Music Awards, Best of Competition Winner in Interactive Media and Emerging Technologies

the screen are being transformed via real-time audio-visual interaction. In this act, improvisational performance on the Danso (Korean bamboo flute), singing bowl, and live electronics affect the visual content. In the final act, humanity revives and imagines the peak utopian state by building the 3-d digital model made out of audiences' faces. The violin improvisation interacts with the rotation of the model and the intensity and shape of the light to represent utopia. (Credit: technical support and programming by Martin Ritter)

from the BEA competition, Saint Michael Achievement Medal from International Juried Fine Arts Competition, etc. Her work has been featured in NYCEMF, ICMC, SEAMUS, Society of Composers, Amermman Biennial Symposium, Klingt Gut, etc., to name a few. She is the author of "Social Media and Music," (Peter Lang Press) and "Evaluation and Credentialing in Digital Music Communities" (MIT Press). Currently, she is an Associate Professor at Miami University Regionals, Ohio.

## **Sabe**

*Mental Feedback Loop* (2023), an audiovisual performance using voice and no-input mixer

### **Program Note**

*Mental feedback loop* is an audiovisual performance using a no-input mixing and voice in real time. This abstract and introspective piece is a representation of anxiety that is generate by a self-critical conversation that turns into parasitic thoughts. Full of contrasts, it keeps both spectators on alert and force them at other times into the comfort of mental violence. Synchronized with the saturated voice and textured sounds, the black and white videos accentuate the screaming side of the piece. Abstract videos resemble will-o'-the-wisps, ephemeral little creatures. A parasitic idea like a Larsen effect is a feedback loop that is self-generated and feeds on itself once activated. The sounds from the no-input refer to this self-generated mental loop. The piece is punctuated with vocal textures and primal screams that surround the viewer of my inner state.

### **Biography**

Sabe is an audiovisual performer artist from Canada. She uses her voice and a no-input mixing board as a compositional and live tool to create texture and synchronise them to her own textured videos. After graduating from Concordia University with a major in photography, she studied several aspects of tonal music, including guitar and multiple vocal techniques. She fell in love with digital music and enrolled in the

D.E.S.S in digital music at the *Université de Montréal*. It is through sound textures that Sabe finds a great freedom of artistic expression. Her studies with the audiovisual artist Myriam Boucher since 2020 were a decisive moment in her artistic approach and therefore open a world of possibilities in which she joins her two passions, music and visual. Sabe draws on her personal experiences to express herself on various societal ills. In her performances, she connects sound and image to create intimate and abstract pieces in which she wants viewers to recognize themselves with their own life experience. Many have said that her creations are contrasted, raw and destabilizing.

## **Concert 2b: Queen's Head Pub, 9:00pm – 12:00am**

Featuring performances by Berklee faculty-artists Daedelus and Dan Freeman, plus a live-coding algo-rave by the MIT FaMLE Laptop Ensemble



## SATURDAY MORNING

### **Gestural Mapping and Physical Modeling with Digital Audio [9:15am – 10:45am, Room 9]**

#### **Aida Khorsandi Ardebili**

"Haptic Aurality: An Onto-Epistemological Inquiry in Gesture-Controlled DMIs"

#### **Abstract**

This proposal is an onto-epistemological inquiry to the haptic aurality of sonic knowledge production through gesture-controlled digital music instruments (DMIs), within the framework of Situated Knowledges (Haraway 1998). This study opts and utilizes the material-semiotics as its research methodology, as well as its theoretical framework, to investigate the interwoven interrelations of the instrument, sounds, the control interface, the designer, and performer/composer in meaning making and through the materiality of interactions with DMIs. In the context of this research, I use the term haptic aurality to refer to and investigate the bodily and cognitive modes of performers' somatic engagements and feedback loops of experimentation with the DMIs, that are embedded in and entangled with every step of sonic knowledge production. Haptic aurality also refers to all the decisions and adjustments that are made for the design of the digital music instrument, as well as the composition (or any to-be-performed music materials) that entails expressivity and meaning making through sonic interactions between the human and the machine.

This inquiry offers new framework and methodology for the study of gesture-controlled DMIs. It also contributes to establishing new organologies, through studying the design, built, technicality, versatility, mapping capabilities and diverse approaches to embodied and physical engagements of meaning making through sound and body. I argue, the new organologies can be understood and theorized through the lens of material-semiotics, in which the musical practices are developed through feedback loops of bodily listening and experimentations. Such epistemological (re)framings (called haptic aurality in the context of this research), offers a context for studying embodiment and expressivity, and renegotiates the object-subjectedness of performers/composers and instruments. In this onto-epistemological inquiry various types of gesture-controlled DMIs will be categorized such as custom-built

#### **Biography**

Originally from Tehran, Iran, Aida Khorsandi (BA, MA) is a musician, sound artist and music educator currently pursuing her doctoral studies at music department of York University. Holding a BA in Classical Piano performance from University of Arts in Tehran, Iran, Aida pursued her music career by studying music psychology research at University of Jyväskylä, Finland and conducted research in the field of music and emotions. Graduating with her second master studies in music technology and digital media at University of Toronto, Aida built an audiovisual interactive playground with made objects for her final project. Currently as a PhD student in musicology at York, Aida is working on building interactive environments with focus on sound and haptic listening and musicking.

instruments made by and for performers (e.g., The Hands by Michel Waisviz, and various instruments designed for Pamela Z), as well as more commercial ones (e.g., MiMu Gloves and Instruments of Things), as well as the categories about the communication technologies that is used in different instruments' built and design such as wearable vs. environmental motion capture technologies.

## Doug Barrett

### "Laetitia Sonami's Lady's Glove and the Hand as Digital Interface"

#### Abstract

This paper considers the hand as a digital interface in composer Laetitia Sonami's Lady's Glove instrument. For nearly twenty-five years Sonami used different versions of the wearable controller for the real-time manipulation of digital sound. Sonami introduced the first, "kitchen wear" version of the Lady's Glove at Ars Electronica in 1991 for a collaborative performance with the artist Paul DeMarinis based on *Mechanization Takes Command: A Contribution to Anonymous History*, a 1947 text by the Swiss architectural historian Sigfried Giedion. Giedion's text describes among other things the historical effects of automation and mechanization on the human body, even anticipating a kind of posthuman conception of the hand in referring to the organ as a "prehensile tool." In their multimedia text setting, Sonami and DeMarinis refract Giedion's *Mechanization* through manualization and competing forms of digitality.

Sonami's performances imbue computer music with the analog contingency of the gendered body, while her Lady's Glove points to a tacit continuity between the body and number inherent to the concept of the digital. Sonami describes the Lady's Glove, in part, as a response to the "heavy masculine apparel" found in virtual reality systems. In the third version of her glove, she nevertheless incorporated sensors from the Power Glove, a device that brought such VR aesthetics to consumers, and used a tracking function based on the reflection of audio signals above the range of human hearing—a technique associated with obstetrics known as ultrasound. The paper considers the relationships between gestation and gesture in Sonami's *What Happened II* (1980), which portrays familial reproduction and its disintegration. It concludes that Sonami's Lady's Glove musically parallels the use of the hands as an interface for domestic care, reproductive labor, and housework.

#### Biography

G Douglas Barrett works on experimental music, media theory, and contemporary art. His new book, *Experimenting the Human: Art, Music, and the Contemporary Posthuman*, was published in 2023 by the University of Chicago Press. His book, *After Sound: Toward a Critical Music*, was published in 2016. His articles have appeared in *Cultural Critique*, *Discourse*, *Postmodern Culture*, *Mosaic*, *Twentieth-Century Music*, and *Contemporary Music Review*. Recently, he joined Syracuse University's Television, Radio, and Film Department as an Assistant Professor.

## Michele Ducceschi

### “Physical Modelling: Enabling Ideas and Current Directions”

#### Abstract

Physical modelling (PhM) synthesis (also known as synthesis by rule or synthesis from first principles) refers to a wealth of techniques able to reproduce the sound of acoustic musical instruments algorithmically. This practice evolved parallel to the advent of computers, though the enabling ideas behind PhM trace back to the early works on differential calculus by D’Alembert and Euler in XVIII century Europe when the musical problem of the vibrating string was investigated and formalised mathematically. In the 1990s, scientists and musicians implemented these ideas in digital computers, giving rise to the first successful examples of PhM synthesis. Among these, digital waveguides and modal methods occupied a central role due to their remarkable efficiency.

Soon, research in PhM evolved from purely artistic to scientific after researchers started applying mainstream numerical methods to solve more complicated physical systems. This came at the expense of real-time synthesis but allowed the exploration of systems that were out of reach for the early synthesis techniques. Finite-difference methods, a numerical technique in which the differential operators are approximated by algebraic operations on a grid, allowed to simulate objects such as bars and plates and have since become a standard in PhM synthesis. Today, the frontiers of physical modelling extend far beyond academia and embrace fields outside of musical acoustics: a quick survey of commercial music software branded as physical modelling is proof of the growing appeal of such techniques to the public. Commercial applications have appeared together with a growing body of academic work but have yet to reach maturity: many current applications are still out-of-reach for real-time synthesis. In this talk, I will review the enabling ideas of PhM from a historical perspective, beginning with the early models of musical string vibration to the modern networks of nonlinearly coupled objects. I will focus on two recent ERC-funded projects exploring ideas in PhM synthesis, the NESS project (2011-2016), led by Prof Stefan Bilbao at the University of Edinburgh, and the NEMUS project (2021-2026), led by myself. Examples of real-time applications running on consumer hardware will compound the slideshow presentation.

#### Biography

Michele Ducceschi is an Associate Professor of Acoustics in the Department of Engineering at the University of Bologna, Italy (2021-permanent). Previously, he was a Leverhulme Early Career Fellow (2017-2020) at the University of Edinburgh, Scotland, and a Royal Society Newton International Fellow (2015-2017), again at the University of Edinburgh. In 2020, he was awarded an ERC Starting grant for my project NEMUS – Numerical Restoration of Historical Musical Instruments, creating digital replicas of historical musical instruments that are out of playing condition. His research sits at the intersection of music, physics, engineering, computer science and applied mathematics. He is interested in developing fast and reliable numerical schemes for the simulation of nonlinear vibrating systems, enabling a deeper understanding of the sounding object from a simulation perspective. He works with musicians and museum curators to bridge the gap between technology,

## **Workshop: Accessibility, Technology and Solidarity: An Emerging Institutional Praxis for Musicking [9:15am – 10:45am, Room 4]**

### **Ely Lyonblum and Nasim Niknafs**

#### **Abstract**

With the University on the precipice of cultural and technological transformation, this workshop invites participants to consider new approaches to developing accessible creative spaces that redefine musical excellence. The convenors will draw from two initiatives at their home institution, the University of Toronto Faculty of Music, as a case study for practices in public scholarship and community engagement. Following the tenet that "...praxis is always 'history making action' that transforms the world in which the practice is carried out" (Kemmis et al 2013), we acknowledge that the role of inclusive design and the application of technology in music studies holds vital importance as we strive to create equitable music spaces for all learners.

Our first case study focuses on strengthening ties between higher education institutions and vulnerable artists through Sustainable pARTnerships: Collaboration and Reciprocity in Creative Cities, a 16-month participatory arts-based research project that brings together the cultural and academic sectors to jointly imagine a post-pandemic reality in which artists can thrive. Work collaboratively with arts workers and arts organizations to document the challenges they have been facing, we developed the emergent research methodology of crystal-scaping and collaborated with five Toronto-based artists working in a variety of media to create an interactive website, The Artists' Broadsheet, and an in-person touring public exhibition, Art (Un)done: Private Lives, Public Encounters.

Our second case study focuses on nascent strategies to bring the expertise of newcomer and refugee artists into the Canadian arts sector and the Faculty of Music. This research investigates the cultural programs and music education practices developed for refugees by the municipal government, and arts organizations to critically examine the

#### **Biographies**

Nasim Niknafs is Associate Professor of Music Education at the Faculty of Music, University of Toronto where she also serves as the Associate Dean, Research and Coordinator of Music Education. Nasim's research concerning social justice, activism, and politics of contemporary music education intersecting with cultural politics, and popular music has been widely published in international journals and edited volumes of music education. Concluding longitudinal research on the music education of rock musicians in Iran, Nasim is conducting a SSHRC funded research titled, *Sanctuary City: Cultural Programs, Music Education, and the Dignified Lives of Refugee Newcomers in Toronto* where she examines the cultural programs and music education practices

intersections and divergences of such programs with the already rich musical and cultural practices and experiences that refugee newcomers bring with them when resettling in Toronto.

The proposed workshop includes an interactive exercise that maps institutional resources, unacknowledged expertise, the attribution of agency to actors outside the institution, and the socio-cultural location of researchers in relation to their collaborators and subjects. Participants are encouraged to examine the complexities of working with communities and creating welcoming spaces for them into the University environment.

developed for refugee newcomers by the municipal government, and arts organizations in Toronto. Nasim holds degrees from Northwestern University, New York University, Kingston University, London, and University of Art, Tehran.

Ely Lyonblum is the Strategic Research Development Officer in the Faculty of Music at the University of Toronto. His projects, largely focusing on cultural equity and music technology, range from the history of sound recording to American Sign Language performance art and storytelling through music. He trained as a documentary filmmaker at Goldsmiths, University of London, and completed a PhD in music at the University of Cambridge. His work has been presented by the MIT Media Lab, CBC Radio 1, the Smithsonian Institution, and the British Library and has been shown at music and arts festivals across six continents.

## **Workshop: Body/Bodily Resonance [9:15am – 10:45am, Holden Chapel]**

### **seah (aka Chelsea Heikes)**

#### **Abstract**

Through the use of somatic movement modalities Butoh, Body Weather Laboratory, and Noguchi Taiso, seah proposes that one can experience oneself as a water bag. As a water bag, the body's interfaces become porous and attenuate to sound in new ways. This workshop is meant for the nondancer/mover and specifically asks those working with sound to experiment with the body's capacity to be resonant as well as a vessel for/of resonance. A similar workshop has also been given at Moxsonic Experimental Sound Festival at the University of Missouri, Warrensburg in March 2020, although seah has been teaching such workshops for dancers including at University of Wisconsin - Michigan, and for fine art students at California College of the Arts and Art College of Alberta - Calgary.

#### **Biography**

seah (Chelsea Heikes) composes sound and video for installation and performance art. Trained in Butoh, Body Weather Laboratory, and Noguchi Taiso, the compositions are an expression of somatic experiences housed deep within the sinews of the body. seah's solo work and collaborative project (post doom romance), have been reviewed by several experimental sound art writers. The art duo dismantles notions of linear time/space through layered audio-visual assemblages culled from inner and outer psychogeographies. Seah has a BFA from California College of the Arts, an MA from European Graduate School and has guest lectured at CCA in San Francisco, Alberta University of the Arts in Calgary (Canada), and University of Wisconsin - Milwaukee. Artistic work and philosophical writing have been presented throughout Europe and North America.

## Organs [10:00am – 12:00pm, Room 6]

### Annie Garlid

#### “Viral Organs: Materiality and Sacrality in Contemporary Experimental Music”

##### Abstract

This paper examines a burgeoning (micro)trend within an international scene of experimental and electronic music in which young composers are writing for and performing on old church pipe organs. I will take as case studies the work of the American Paris-based artist Kali Malone and Swedish Berlin-based artist Ellen Arkbro. Against the backdrop of globalization and digitization, these two composers fashion sonic worlds in which slow replaces fast, material romances ether, and process complicates facade. Kali Malone, whose music is known for attracting the attention of zoomers, mindful ravers, and fashion houses alike, weds pseudo-liturgical aesthetics and Protestant notions of restraint to a sensual presentation of the organ as body. As if monitoring a gargantuan, breathing animal, she places microphones inside the instrument’s pipes and next to its creaking keys. Listeners accordingly bear intimate witness to the friction and wheezing of an archaic assemblage at particular terrestrial coordinates. Once recorded, these assemblages—themselves physical archives of histories and theories—live unexpected afterlives within a niche scene that thrives online.

Ellen Arkbro recorded her 2017 album *For Organ and Brass* on a 1624 church organ in Tangermünde, Germany, having sought out the instrument for its idiosyncratic meantone tuning. Like Malone, she binds listeners to a sense of place through the use of a large instrument that is inseparable from the building that houses it—a far cry from the portable computers and ubiquitous apps that allow anyone and everyone to produce new music in 2023. While considering the philosophical insights of the contemporary “experimental,” this paper will also ask the following questions: How does the “viral organ” relate to the historical organ? How do young artists gain access to these sequestered and deeply socialized religious spaces? What roles do the composers’ positionalities play in their sound- and place-oriented projects? Drawing from new organology, new materialism, religious studies, and media studies, this paper examines processes of sanctification and desanctification in an age that invites the intellectual and aesthetic straddling of old and new, material and digital.

##### Biography

Annie Garlid is a musician and PhD candidate at New York University, where she researches representations of nature, materiality, and place in recent experimental music. As a viola player and singer, she specializes in both historical performance practice and contemporary music. She appeared on Holly Herndon’s 2019 album *PROTO* and Caterina Barbieri’s 2019 album *Ecstatic Computation*. She has collaborated and performed with a number of other composers and artists, including Rosemarie Trockel, Bill Kouligas, Emptyset, Nile Koetting, Cat Lamb, Marc Sabat, and Laure M. Hiendl. She plays and sings with the Cramer Quartet, Trinity Baroque Orchestra, Seraphic Fire, Early Music New York, De Nieuwe Philharmonie Utrecht, the Netherlands Bach Society, the Handel & Haydn Society, and Tafelmusik. She has been recording and touring as UCC Harlo since 2017.

## Alan van Keeken

### “A Democratic Interface for Popular Music?”

#### Abstract

Electronic home organs were one of the most successful electronic instruments in post-war West Germany. The instrument was marketed as a one-man orchestra for domestic spaces, made to fit seamlessly into furniture landscapes as well as into the musical and sonic world of middle-class households (van Keeken 2021). The advertising materials praised parts of its interface, especially the controls for the drum machine and the (semi-)automated bass and chord accompaniment as shortcuts to mastering the instrument (see fig. 1). The home organ can thus be considered a “democratizing” technology that subverted some of the gate-keeping and ideological elements of instrumentality (Hardjowirogo 2017), namely the years of training and effort musicians were expected to invest. What role did this unusual selling point play in the success, user design, and cultural impact of the instrument?

The home organ in its broader context remains a desideratum of music technology’s history, which has rarely been covered in scientific research (Stanbury 2017; Davies 2006). One reason – apart from the “low” status of the “Schweineorgel” (literally: “pig organ”) – may lie in the various options of writing contemporary instrument historiographies, especially now that mainstream organology has to share authority in this field with, for example, media studies (Dörfling 2022), STS (Pinch/Mooney 2021), or popular music studies (Brennan 2020). The joint research project Musical Objects of Popular Culture aimed at developing a new, integrative way of contextualizing music technology. Drawing on 23 case studies, it investigated the material and technical basis for popular culture phenomena in Germany from 1945 until today (Burkhardt et al. 2021).

My paper introduces socio-technical artifact analysis (van Keeken 2022) as a framework for investigating the impact of the electronic home organ. It has been developed for the sub-project Generators of Sound, concerned with musical instruments and sound-processing devices. It considers (1) the object itself as a technical materialization of design processes and production cultures; (2) contextualizes its marketing and user-design (Akrich 1992) through promotional literature and internal company documents, understood as paratexts; and (3) finally analyzes its use, domestication (Hirsch / Silverstone 2003), and appropriation in private and professional practice.

#### Biography

Alan van Keeken, M.A., studied musicology, sociology, and political science at Justus Liebig University Giessen. In 2018–2021, he worked as a research assistant at the rock’n’popmuseum in Gronau, Westphalia. There he was part of the project Musical Objects of Popular Culture, funded by the Federal Ministry of Education and Research. He was responsible for the sub-project Generators of Sound, concerned with sound producing devices. Since 2021, he has been working as a lecturer and research assistant at Martin-Luther University Halle-Wittenberg’s department of musicology. He currently writes his PhD thesis on the history of the electronic home organ in West Germany. Since 2020, he has published papers on popular music, science and technology studies, and music technology (van Keeken 2021a; tba.). Together with Johanna Imm, he organized the conference Instrument Research 2.0 at Martin-Luther University Halle Wittenberg (Imm / van Keeken 2021). In 2023, he



will be scholar-in-residence at Deutsches Museum in Munich.

## Fanny Gribenski

### “The Organ as Colonial Infrastructure: Instruments, Empire, and Maintenance”

#### Abstract

This paper introduces organs as colonial infrastructures. In recent years, conversations surrounding instruments have omitted the organ, reflecting a broader tendency within musicology to leave the study of the instrument to the specialized field of organ studies. As my contribution will demonstrate, however, the organ raises particularly pressing social and political questions, offering new ways to think about the relation between sound and colonialism. As an integral component of church buildings, the instrument was part of broader schemes to reshape colonial territories through the transformation of urban and rural environments via the violent imposition of visual and auditory markers of power, including cathedrals, ecclesiastical housing, and bell towers. In addition, organs were crucial media for the dissemination of Western musical repertoires and systems, as well as modes of playing, singing, and experiencing music in colonial settings—in Kofi Agawu’s words, they were “colonizing forces.”

Centered on France’s efforts to develop and maintain a network of organs in the country’s colonies in the nineteenth century, my paper shows the value of rethinking the instrument through the lens of infrastructure studies. I first examine how the construction and operation of these large pieces of equipment relied on the cooperation between broad and diverse segments of society, thus offering a good starting point to disentangle the entwined histories of religion, politics, art, and industry in colonial settings. Second, I turn to recent work in the field of technology studies, which have emphasized the necessity to move away from questions of design and innovation, to examine problems associated with the maintenance of technology. I show how this shift can help us rethink the relationship between musical instruments and power in colonial settings. On the one hand, French political, religious, and industrial authorities continuously failed to sustain an operational network of organs in the colonies: frequent natural disasters regularly destroyed brand-new instruments, while local climatic conditions challenged aspirations of sonic precision. Yet despite

#### Biography

Fanny Gribenski is an assistant professor of music at New York University. She is the author of *L’Église comme lieu de concert. Pratiques musicales et usages de l’espace* (2019) and *Tuning the World: The Rise of 440 Hertz in Music, Science and Politics* (2023). She is the co-editor of *Musiques et pratiques religieuses en France au XIX<sup>e</sup> siècle* (2022), of special issues of *Contemporary Music Review* (“Opening the Doors of the Studio,” 2020) and *Transposition: Music and Social Sciences* (“The Price of Music,” 2018), and of the memoirs of *fin-de-siècle* music lover Hermione Quinet (*Ce que dit la musique* [1893], 2016). Recent articles have appeared or are forthcoming in *Past and Present*, *ISIS*, *Nineteenth-Century Music*, *Sound Studies*, *History of the Humanities*, *Revue d’Anthropologie des Connaissances*, and the *Revue de musicologie*. With

these material failures, attempts to create a powerful infrastructure nonetheless produced important and long-lasting social and political effects, triggering ever-more intrusive schemes of surveillance over local communities.

Viktoria Tkaczyk and David Pantalony, she is co-editing a book titled *Unsound Supplies: Extractivism and the Material Provenance of Auditory Technologies*.

## **George Rahi**

### “Phantoms in the Machine: Mediation and the 21st Century ‘Hyper-Organ’”

#### **Abstract**

Invoking the idea of a post-digital milieu to think through the wider relations between art, technology, and society, this presentation focuses on the pipe organ as both a traditional and radical instrument which indexes music’s changing relationship to its means of production. As the instrumental antithesis to the trends of miniaturization and standardization that have shaped contemporary music production, the pipe organ provides a unique view into a material culture which continually generates new sound worlds that extend beyond their preceding forms. Inspired by media archaeological methods of finding the ‘new’ in the ‘old’, my research seeks to locate various productive tensions and entanglements between the organ and its surroundings over history, including between religion and secularism, immaterial and material culture, animacy and object. I propose that these entanglements are not only present in contemporary organ music practices, but provide useful frameworks for discussing philosophies of art making beyond this particular field. In detailing various vitalist forces in organ arts, a notion of the organ emerges not just as a musical instrument (whose relevancy is widely considered in decline), but as a media interface which continues to be re-imagined amidst the further diffusion of digital modalities from fields such as electronic music and computational arts.

#### **Biography**

George Rahi is an interdisciplinary artist based in Vancouver, unceded Coast Salish territories. His work includes installations, instrument making, composition, solo + ensemble performance, and works for radio, theatre & public spaces. Recent presentations have included Artificial Sonification exhibition (Matera), SPEKTRUM (Berlin), Kunst-Station Sankt Peter (Cologne), Fusebox Festival (Austin), Vancouver New Music, and Regenerative Feedback Festival (Rotterdam). He has been an artist in residence at Elektronmusikstudion (EMS), Lobe Spatial Sound Studio, and hcma architecture. He is currently a PhD student in Contemporary Art at Simon Fraser University, where his research and creation explores the emerging digital culture of the pipe organ.

## Politics of Musical Infrastructure [11:00am – 12:30pm, Room 9]

### Raphael Börger

“Smart Musical Infrastructures and “Infrastructuralization” – The Case of the Internet of Musical Things (IoMusT)”

#### Abstract

“[P]ositioned at the confluence of music technology, the Internet of Things, human-computer interaction, and artificial intelligence”, the Internet of Musical Things (IoMusT) “relates to the networks of computing devices embedded in physical objects (Musical Things) dedicated to the production and/or reception of musical content” (Turchet et al. 2020: 1). Presented as “ensembles” of interfaces, protocols and representations (Turchet 2018: 382) – of things and information – the “IoMusT technological infrastructure enables an ecosystem of interoperable devices that connect musicians with each other, as well as with audiences” (Turchet et al. 2021: 154). Insofar infrastructures entail, according to Brian Larkin, “things and the relations between things” (2013: 329; *cf.* Magaudda 2019), the IoMusT can be considered an infrastructure under construction whose developers envision it as a “calm technology” (Weiser/Brown 1997). With Weiser’s and Brown’s positive operationalization of a somewhat Heideggerian informed forgetfulness of technical being, the IoMusT research shares a tendency to let some critical relations fade into oblivion (*cf.* Larkin *ibid.*) – an oblivion for which Johannes Bruder coins the term “infrastructuralization” (2019). Through the lense of a “political ecology of music” (Devine 2019), it can thus be noted that IoMusT research infrastructuralizes its relationships with natural resources, its needs for electricity, and especially cooling systems to run server facilities.

Following the thread of infrastructuralization within the IoMusT research my paper seeks to reflect and situate musical infrastructures in terms of *global* and *planetary* (*cf.* Chakrabarty 2021) implications. In doing so, particular attention is given to those approaches to infrastructures that emphasize the political sides and sites. Taking the IoMusT research as an example, I try to shed some light on a potential vagueness of infrastructure research (Hesmondhalgh 2022) by contributing to a differentiation of the politics of infrastructures on a methodological and theoretical level.

#### Biography

Raphael Börger studied musicology at Humboldt-Universität zu Berlin (BA, MA) with a focus on the theory and history of popular music, systematic musicology as well as transcultural musicology and historical anthropology of music. Master’s thesis at the intersections of the history of listening and sound, anthropology and the history of science, on noise-listening in the context of physical-acoustic industrial research around 1920 and in the field of a recent listening practice that mobilizes noise as a sleeping aid. Since fall 2022 research assistant at the Department of Musicology at the University of Potsdam. Member of the “Gesellschaft für Musikforschung” (GfM) and the “International Association for the Study of Popular Music” (IASPM D-A-CH).

## Daniel Villegas Vélez

### “Timbral Manipulations, Determined Unpredictability, and the Anthropocene in a Colombian Sound Installation”

#### Abstract

*Fósil Acústico* (2022) is a public sound installation in Cartagena de Indias, Colombia, that invites visitors to engage in new modes of listening and interacting with a sonorous atmosphere, which they manipulate yet cannot fully control. The installation features a sculpture of the inner ear that serves as a touch interface for audiences to operate timbral manipulations over an enveloping synthesized drone generated through FM synthesis, itself controlled by a chaotic low frequency oscillator that evokes the deterministic unpredictability of changing weather patterns. Located inside a 16th-century cistern within the colonial city walls, the site-specific installation mediates between Cartagena's colonial history and its current condition as a vulnerable site of anthropogenic climatic alterations, making it a paradigmatic place to examine the racial constitution of the Anthropocene (Yusoff 2019) from the perspectives of sound, listening, and touch.

Drawing on Tresch and Dolan's (2013) critical organology, this paper argues that the installation models a sound-oriented ethics that is attuned to the challenges of climate change in the Caribbean. Visitors are invited to explore the object's sculpture's smooth, graphite surface, which serves as a capacitive sensor that modulates the timbral characteristics of the drone in unpredictable ways, owing to the sensor's varying sensitivity as well as modulations from the chaotic LFO. The sculpture thus acts as an interface that enables immediate and determinate yet unpredictable effects on the timbral environment of the installation. In this way, what Tresch and Dolan call the object's "material disposition" interrupts the traditional "mode of mediation" of standard instruments where specific actions result in invariable and controllable results.

The installation's determined unpredictability thus amplifies Tresch and Dolan's claim that human-object relations can be understood through the lens of ethics. By exceeding the instrumentality of the instrument, the sculpture in *Fósil Acústico* becomes a placeholder for diverse modes of alterity—human and non-human—affording visitors with the possibility of exploring modes of (self)relation through the interaction of listening and touch in the context of climate change. Overall, the paper argues

#### Biography

Daniel Villegas Vélez is a musicologist, philosopher, and sound artist living in Montréal (Tiohtià:ke). Daniel received his PhD in Musicology from the University of Pennsylvania (2016) and held postdoctoral fellowships at the Center for Cultural Analysis at Rutgers University and at the Catholic University of Leuven in Belgium. Daniel's work examines early modern/colonial musical performance and aurality; Western music aesthetics; and the role of timbre and technology in popular and experimental music, while his practice as a sound artist focuses on modular synthesizers, drones, and sound installations. His work has appeared in edited volumes such as *Sound and Affect*, *The Oxford Handbook of Timbre*, and journals including *Performance Philosophy*, and *Tijdschrift voor Filosofie*. Daniel is currently a research associate at the Matralab centre at Concordia University, where he is completing his first book

for the relevance of critical organology as a theoretical framework for understanding the complex relationships between humans, objects, and climate crisis.

## **Brian House** “Macrophone Project”

### **Abstract**

Normally too low-frequency to hear, infrasound travels vast distances through the atmosphere. It comes from calving glaciers, wildfires, energy infrastructure, and even HVAC systems at massive data centers. Big phenomena like these are entangled with the climate crisis. If we could hear infrasound, could we listen to the crisis as it unfolds across the globe?

The artistic research project Macrophones appropriates Cold War technology and combines it with cutting-edge signal processing and machine learning in order to make infrasound audible. Situated in locations including old-growth forests, the arctic tundra, and city centers, the installation comprises electronics that record microbarometric fluctuations through a sculptural wind filter. The recordings are processed and resampled upward into an acoustic range that we can hear, and via audio augmented reality, listeners at the site hear infrasound spatially situated in the landscape around them.

This paper discusses the artistic research behind the Macrophones project and situates it within historical and contemporary technological strategies for mediating large, distant, and complex phenomena. Perceiving via infrasound runs contrary to the visual modes that are currently dominant and the network and satellite infrastructure that supports them, invoking instead epistemologies developed in the context of music. The promise and pitfalls of such an approach are discussed, touching on augmented reality and the changing role of the body in interfaces for listening. Ultimately, Macrophones suggests that paying attention to how we are connected through the atmosphere, rather than through the internet, is both poetic and political.

manuscript, titled *Mimetologies: Mimesis and Music 1600-1850* for Oxford University Press.

### **Biography**

Brian House is an artist who investigates the rhythms of human and nonhuman systems. Through sound, subversive technology, and multidisciplinary research, he makes our interdependencies audible in order to imagine new political realities. House has exhibited at the Museum of Modern Art; the Museum of Contemporary Art, Los Angeles; Ars Electronica; the ZKM Center for Art and Media; the Contemporary Arts Center, Cincinnati; and the Brooklyn Botanic Garden, among others, and is supported by Creative Capital. The New York Times Magazine, WIRED, The Guardian, and TIME’s annual “Best Inventions” issue have featured his work, and his academic writing has been published in Leonardo, Journal of Sonic Studies, Contemporary Music Review, and e-flux Architecture. House holds an MA in media studies and a PhD in computer music from Brown

University and was Associate Scholar at Columbia University's Center for Spatial Research. He is Assistant Professor of Art at Amherst College.

## **Analyzing Instrumental Affordances in Contemporary Music [11:00am – 12:30, Room 4]**

### **Noah Kahrs**

"Oscillators' Affordances in Ryoji Ikeda's and Maryanne Amacher's Compositional Theories"

#### **Abstract**

In the twentieth century, music shifted away from traditional instruments and towards circuitry (Iverson 2018; Wittje 2016). As electronic instruments spread globally (Novak 2013; Veal 2007), they brought certain lines of theoretical experimentation with them. To that end, I argue that electronic oscillators, by representing pitch in terms of frequency, propagated older theories of tone combination. Tone generators, by taking highly precise frequencies as input, encourage theories of frequency subtraction: tones with frequencies  $f$  and  $g$  can combine in the air, an ear, or a loudspeaker to create acoustical beating or combination tones with frequency  $|f-g|$  (Turner 1977). Despite this theory's older origins in Tartini and Helmholtz (Barbieri 2020; Steege 2012), electronic oscillators encouraged more precise testing and use in electronic music (Gordon 2022; Iverson 2018).

Compositions by Japanese composer Ryoji Ikeda and American composer Maryanne Amacher foreground frequency subtraction's compositional possibilities as made possible by high-precision synthesizers. In Amacher's 1999 "Chorale," listeners' ears produce frequencies calculated to produce a C major bassline. If the oscillators were off by even 4 Hz, the bassline would go a quarter-tone out of tune. The high synthesized pitches do not come from the bassline's harmonic series; this dissociation materializes her distancing of her electronic materials from missing fundamentals and their tonal norms (Cimini 2022; Cimini and Dietz 2020). In Ryoji Ikeda's 2000 matrix, integer-

#### **Biography**

Noah Kahrs is a PhD Student in Music Theory at the Eastman School of Music in Rochester, New York. His dissertation, provisionally titled "Composing (with) Theories of Acoustics and Pitch Perception after 1950," reconsiders the relationship of compositional and scientific theories by examining to experimental music's use of acoustics, the longstanding practice of compositions opening with unisons, and the role of statistics in pieces of long duration. He previously received an MA in Music Composition from the Eastman School and a BA in Music and Mathematics from the University of Chicago. He has published on Sofia

frequency sine tones generate polyrhythms within a 60bpm meter. The slightest imprecision in the oscillators would push these pulses out of phase, rendering them unworkable as meters. My analysis presents the piece's sinusoids and resulting beat frequencies, demonstrating Ikeda's reliance on rhythmic prototypes (Collis 2017).

Although Ikeda and Amacher had no overlap in their training or professional words, the similarity of their approaches nonetheless follows broader postwar flows of electronic music's instruments, albums, and concepts between the US and Japan (Cohen 2022; Manabe 2009; Nakai 2020; Novak 2013). Electronic oscillators, in their seeming simplicity and foregrounding of frequency, implicitly suggest a return to basic acoustical laws and the music theories therein, and their precision affords using those equations towards musical ends.

## Nathan Cobb

"Becoming Machine Becoming Human: Unstable Interfaces in Kaija Saariaho's *Amers* (1992)"

### Abstract

In an article from 1993, Kaija Saariaho explains that computer software functions in her compositional practice as a way of freeing herself "from the constraints of the universe of traditional instruments, while using instrumental experience to structure the discovery of new territories" (Saariaho 2013, 156). This formulation suggests a porous, albeit mutually restricting, relationship between acoustic and electronic means of sound production. In this paper, I build on Alexander Galloway's theorization of the interface as "a process or active threshold mediating between two states" (2012, 23) to show how Saariaho exploits the "unstable" interfaces between composer, computer, and performer as a means of generating compositional material for her cello concerto, *Amers* (1992). Drawing on sketch material, source code, and software documentation preserved in the Paul Sacher Archive, I focus on the technical and hermeneutic significance of two specific points of interface instability in Saariaho's compositional process.

I first consider the idiosyncratic parametric requirements of the MOSAIC program for sound synthesis, which required composers to encode the quantitative physical characteristics of resonant bodies, excitation sources, and modes of attack. While Saariaho describes the program as being estranged from her intuitive "compositional and instrumental

Gubaidulina and Maryanne Amacher in *Music Theory Online*, on Hans Abrahamsen in *Tempo*, and on chord spacing in Ohio State's music cognition conference proceedings.

### Biography

Nathan Cobb is a Ph.D. candidate in music theory at the University of California, Santa Barbara. His dissertation research draws on archival materials housed at the Paul Sacher Foundation to trace the developing compositional style of Kaija Saariaho from the late-1970s into the mid-1990s. He has presented at regional, national, and international music conferences, where his papers reflect the diversity of his research interests, including folk and electronic dance music, topic theory, post-tonal theory pedagogy, and philosophical approaches

experience" (2013, 173), this tension ultimately leads her to conceive of instrumental sound from a novel perspective that is less constrained by the physical limitations of acoustic instruments and performers. I then show how Saariaho uses rhythmic interpolations generated for electronic realization in the FORMES program and adapts them in "freer form" for human performers—a process that reflects the divergent instrumental affordances of synthetic and acoustic sound production. These two points of instability—between composer and computer in the first case and between computer and performer in the second—reveal what Galloway calls the "generative friction" of the interface (2012, 31): a *poesis* of translation in which human instrumental practices are formatted into computer-readable code and then back again. In this sense, the dynamism of *Amers* is founded less on the tension between soloist and orchestra, as one might expect of a concerto, and more on humans, machines, and the interface between them.

to music theory. Nathan also has a forthcoming article in *Perspectives of New Music* that employs Deleuzian philosophical concepts in an analysis of a piece by Michaël Levinas and a forthcoming article in the *Mitteilungen der Paul Sacher Stiftung* that considers the influence of post-serialism on Saariaho's early work, *Sah den Vögeln*.

## Mingyeong Son

### "Recontextualization of Korean Woman Composers' Traditional Instruments in the Global Era: With a Focus on Unsuk Chin and Jin Hi Kim"

#### Abstract

This presentation deals with the recontextualization of traditional Korean instruments by female Korean composers in the twenty-first century. As Korean composers gain international recognition, they are increasingly incorporating cultural heritage into their music while considering questions of cultural identity (Utz, 2021). However, many Korean compositions featuring traditional instruments tend to strip them of their original cultural context, leading to what can be called "recontextualization." This study focuses on two compositions by Korean woman composers living in Germany and the United States: Unsuk Chin (b. 1961)'s *Sü für Sheng und Orchester* (2009/2010), and Jin Hi Kim (b. 1957)'s *Ghost Komungobot* (2018).

Each composer was educated in Western music and Korean traditional music and went to study abroad in Germany and the United States. The study argues that their use of non-Western instruments and musical representations goes beyond cultural symbols. In *Sü*, Chin pays attention to the unique sonic potential of the *sheng*, such as its internal timbre and pitch system. By abstracting the traditional sound and recontextualizing it with European cosmopolitan music, she creates a third sound that complicates cultural origins. In *Ghost Komungobot*, Kim

#### Biography

Mingyeong Son, as the recipient of the Fulbright Scholarship, is currently working as a postdoctoral researcher at the Harvard University Department of Music. She received her Ph.D. in Musicology from Seoul National University (SNU), South Korea in 2021 with her dissertation "Western Composers' Encounter with Korean Traditional Music: With a Focus on Compositional Aspects and Musical Aesthetics in the Global Era." She holds a Master's degree in Musicology from Northwestern University and



electronically recontextualizes the original sound of the *geomungo* to experiment with new sounds. As a *geomungo* player, Kim also incorporates improvisational techniques and multimedia design into her performance, building an interaction between electronic and virtual robotic instruments.

Both works explore the diverse possibilities of non-Western instruments in contemporary music without attributing them to traditional idioms or cultural contexts inherent in musical instruments. This denies the delineation of specific national framework according to the composer's origin, race, gender, and cultural background, expanding communication with a global audience based on local voices that have been silenced. Ultimately this study unveils the Asian identity of Korean musical works in the global era, overcoming nationalist and colonialist perspectives.

a Bachelor's degree from SNU. Mingyeong's research interest lies in 20th and 21st-century contemporary music, global intercultural dialogues in Korean contemporary music, and Western composers' reception of East Asian music and its musical aesthetics. She has recently published her article about Unsuik Chin's music and her aesthetics in the *Journal of Asian Music* (2022), and John Zorn's music in postmodern America (*The Journal of Korean National Research Center for the Arts*, 2022).

## **Workshop: Live-Coding Practice and Concepts [11:00am – 12:30pm, Holden Chapel]**

### **Ian Hattwick**

#### **Abstract**

Live coding is a musical practice in which performers generate audio and visuals by typing and executing code in real-time. Since the advent of live coding practice in the mid-2000s, a variety of live coding environments have grown in popularity, including Tidal Cycles<sup>1</sup>, Gibber<sup>2</sup>, and Hydra<sup>3</sup>, each of which present different approaches to conceptualizing the dynamic creation of musical structure and form. Central to live coding practice is the challenge of representing melodic, harmonic, and rhythmic ideas through code, and of allowing for the flexible exploration of electronic music techniques. 'Expressive' code takes a new meaning in this context, requiring both the ability to quickly execute sophisticated musical structures while also providing for a high level of variation depending on the aesthetics and goals of the performance.

#### **Biography**

Ian Hattwick is an artist, researcher, and technology developer whose work focuses on the creation and use of digital systems for professional artistic performance. He is particularly interested in collaborative performance and the creation of multimodal hardware systems to explore and facilitate social and

This workshop will provide a crash course in Gibber, a live coding environment which supports several different models of sequencing. Gibber is a great introduction to live coding, being both browser based, with a reasonable amount of online examples, and supporting many different annotation techniques to visualize the effects of your code. In addition, being built on modern javascript, Gibber is both easy for experienced programmers to get started with as well as providing plenty of high-level abstractions to make getting started quick and easy.

The first half of the workshop will be a crash-course in the basic use of Gibber, showing the easiest way to begin Gibbering. The second half will explore more advanced topics, including a discussion of Tidal Cycles as well as the use of javascript array techniques to flexibly create and modify large-scale musical structures. Ultimately, our goal is not only to gain practical experience in using Gibber itself, but also to better understand the conceptual challenges and opportunities of making music in this way.

embodied interaction. He teaches music technology at MIT, directs FaMLE, the MIT Laptop Ensemble, and is CTO for Heather Interactive, a music experience design startup.

## **SATURDAY AFTERNOON**

### **Temporalities of Musical Media [1:45pm – 3:15pm, Room 9]**

#### **Steffen Just**

“Machines that Make Time: Addressing the Technology of the Player Piano and Piano Rolls”

#### **Abstract**

The player piano was a highly popular instrument during the first three decades of the 20th century, but its historical impact on culture and society has yet to be fully grasped in music, sound, and media research. While cultural histories have shown that the player piano played a significant role in marketing new music genres such as ragtime, jazz, and tango (Dolan 2009, Suisman 2010, Ospina Romero 2019), a comprehensive understanding of the player piano as a sound technology is still missing (Gitelman 2004). This paper aims to discuss the technology of the player piano through a prism of sound, cultural, and media theory.

#### **Biography**

Steffen Just is a research associate in the Department of Musicology and Sound studies at the University of Bonn, Germany. His research project “Syncopated Modernity” (funded by the Deutsche Forschungsgemeinschaft) aims at developing a cultural theory of modernity through

Unlike the phonograph, player pianos did not record soundwaves, but processed punch hole signals that were written into strips of paper. These piano rolls acted as the player piano's "processing unit". When the perforations were pulled over a tracker bar, they activated a pneumatic mechanism that pressed down the keys. This technological arrangement produced very distinct "time-critical" media effects (Volmar 2009): discrete time signals intersected with the continuous time of the paper roll. For the first time in history, this double-layering and interplay of digital and analog could be heard and put to aesthetic uses in a musical instrument. It had a massive impact on the conception of musical time.

I argue that the media-specific "timing" of player pianos can be connected to the rise of syncopation and micro-rhythm aesthetics at the turn of the 20th century. Historical sources suggest that ragtime and jazz pianists, arrangers, and listeners celebrated the player piano's capacity to encode, process, and playback musical time in entirely new ways. On one hand they highlighted the player piano's precision and accuracy, on the other they found pleasure in its unusual leaps, dislocations, and manipulations of time. The historical breakthrough of micro-rhythm and syncopation, a prominent feature of the musical cultures of the "Black Atlantic," must be brought in touch with the history of the player piano. By making this concluding case on ragtime and jazz, I use the player piano to advance new theoretical perspectives on sound, music, and modernity.

## **Florian Walch**

### **"The Record Player as Gateway to Future Extremes: Time Axis Manipulation as Creativity in Early Extreme Metal"**

#### **Abstract**

In this paper, I argue that reducing creativity to time axis manipulation allowed extreme metal pioneers to disavow their creativity. Played faster or slower, existing metal records would begin to growl and detune or be catapulted into rapid fits of inhumane precision. Thus, the consumer tape and phonograph playback devices of the 1980s offered a blueprint to be emulated in future performances. Drawing on German media

the lens of sound and media: <https://sonic-modernity.net>. The project engages sound and media to decentralize common definitions of what counts as "modern" and to develop alternative perspectives and epistemologies. He completed his PhD at Humboldt-University of Berlin on the performativity of subjects in US-American popular music from 1890 to 1960. His research interests embrace the triangle of cultural studies, media studies, and sound studies. Having published on discourses and practices of subjectivation, the media and cultural history of popular music, performativity of gender, race, class and queerness, meaning and materiality of sound, he aims at connecting a range of sound and music related research perspectives.

#### **Biography**

Florian Walch is a music theorist interested in history, more specifically: the ways in which theories of music try to avoid history, in popular and classical repertoires. His

science and Lacanian psychoanalysis, I analyze how extreme metal's original analog ecosystem didn't just support constellated communities of tape traders—but was the infrastructure for a fantasy that allowed for de-personalized iteration and imagination of future sounds.

Bands such as Switzerland's Hellhammer and Australia's Sadistik Execution, center such time axis manipulation repeatedly in autobiographical narratives. Significantly, these musicians attribute creative agency to the record player as if it were commonsense—anticipating shared values in their scenic audience. This reveals the generic values and anxieties of extreme metal. Ideally, creativity is quantitative escalation, but a transgression discovered as an already-there, not one willed against tradition.

This fantastic staging allows subjects to disavow their creativity by transferring it to imagined technological props. By specifying how the re-imagination of technology mediates more extreme repetitions of metal music, I contribute to ongoing efforts to theorize genre in materialist-relational terms. Taking these narratives seriously furthers our understanding of metal's ambivalence about innovation and subjectivity, as well as its current attachment to an analog past.

Unlike emerging turntablist genres, metal could not validate the manipulation of earlier recordings as new primary texts. Instead, they were a blueprint. Time axis manipulation provided a speciously objective yardstick for future metal production. At the time, these then-marginal musicians could match neither the growls of distended voices nor the dry precision of sped-up drum parts. But this unattainability is what pushed their desire.

This paper concludes that this technological transference allowed adolescent musicians to disavow their desire for more extreme music as their own. By transcending human (or, less universally: teenage, male, metal-affine) finitude, technological media staged extreme metal's future as a sublime object untainted by the circumstances of those who desired its creation.

research interrogates the temporality of sound (changes in sensing, recording, and repeating sounds) and the tactics that theory (vernacular and academic) uses to insulate itself from this temporality. How do these maneuvers disclose historical commitments, forms, and values? His dissertation, titled "The Rescue of Inconvenience: Extreme Metal, Sub-Genre Fragmentation, and the Digital Afterlife," proposes that extreme metal's conflicted attachment to technology makes it an exemplary case for understanding how sub-genre, as a form of repetition, is marked by the memory of past media. A second, long-standing research focus is a critical reflection on tonal analysis and its relationship to its ostensible model case, the classical style.

## Christopher Klauke and Valentin Ris

“Interfacing Micro-Time Machines 1900/2000: The cultural techniques of the tonometer and DAW”

### Abstract

Time is fundamental to music (Chua & Rehding 2020). Based on this observation, we will show that musical time is also an effect of specific musical media and their use. More specifically, we are interested in cultural techniques of fabricating musical time—in particular, micro-timing. Micro-timing, such as “groove,” is often associated with music perception and performance. In contrast, we focus on cultural techniques that interconnect the micro-time of different music media (Ernst 2016) and the interfaces that make this level of time accessible to humans.

In our paper, we apply what has been called “German Media Theory” (Siegert 2015; Winthrop-Young 2013) to recent debates in the field of “new organology” (Tresch & Dolan 2013) and explore the intertwining of instruments, musical epistemologies, materials, media, and practices. Here, we highlight the power structures operating within musical media. We do so by means of two examples. The first is the tonometer, a micro-temporal interface for producing scientific knowledge in “comparative musicology” in the German-speaking world around 1900. Famously used in the Phonogramm-Archiv Berlin, this measuring instrument allowed scholars to determine single tones of non-Western musical instruments or phonographically recorded music as a micro-temporal process (i.e., frequency). Based on our scientific reenactment of this tonometric method and related archival documents, we will discuss the techniques of measuring music in light of the asymmetric power relations between the musicologist from the global North and the “world music” under study.

Our second example extends the argument to the present century. Digital audio workstations (DAW) have been the crucial infrastructure for music production since 2000, but their genesis goes back much farther in terms of material history. We look at “flattening” (Krämer 2017) as the cultural technique for programming note values, examining the process of flattening as the condition of possibility for inscribing micro-temporal events. In parallel, the materiality of piano-roll sequences reveals the deep historical trajectory of the DAW interface, which is embedded in the long history of mechanical instruments. We thus

### Biographies

Valentin Ris is a PhD candidate at the University of Bonn working on a dissertation project on the media history of Digital Audio Workstations. He has been a member of the Structured DPhil programme of the Faculty of Arts at the University of Bonn since fall 2021 and a scholarship holder of the German National Academic Foundation since November 2022. Previously, he studied musicology and German studies in Bonn, Cologne (Germany) and Cardiff (UK) until 2020.

Christopher Klauke is a Predoctoral Fellow at the Max Planck Research School “Knowledge and Its Resources: Historical Reciprocities” (Max Planck Institute for the History of Science, Berlin). In his PhD project he explores the origins of music information retrieval techniques in ethnomusicological research between 1885 and 1970. He studied musicology and art history at Justus-Liebig-Universität Giessen for his BA

propose a media-archaeological analysis of the musical concepts inscribed in contemporary software.

and earned his MA in musicology at Humboldt-Universität zu Berlin in 2022.

## **Disability Studies and Musical Interfaces [1:45pm – 2:45pm, Room 6]**

### **Rachel Hottle**

“Joni Mitchell, the Guitar/Body Interface, and Musical Composition as Life Writing”

#### **Abstract**

In normative Western musical encounters between a body and an instrument, the body learns to interact with the physical interface of the instrument as given. When the body in question is disabled and cannot interact with the normative instrumental interface, this relationship can shift, more evenly distributing accommodation between the two parties. Joni Mitchell’s musical career richly illustrates this reconfigured relationship between body and instrument. Mitchell contracted polio as a child, which weakened her left hand. According to Mitchell herself, this disability spurred her to alter the interface of the guitar, creating a system of over fifty different tunings and innumerable hand shapes which facilitate the harmonic and timbral languages that are a strikingly original facet of her work.

I argue that Mitchell’s musicking expands the concept of disability life writing to include musical composition and performance as ways of knowing and communicating one’s lived experience of the body. The knowledge contained within the guitar as epistemic thing changes as each tuning unlocks a new array of sonic possibilities. Through this lens, the guitar becomes a creative collaborator in the life writing process, an actant in an ethical relationship with Mitchell as composer and performer. The resulting music can thus be interpreted as an audible and affective trace of the particularities of this relationship between two bodies.

I demonstrate some of the particular audible traces of this relationship through an analysis of Mitchell’s song “For the Roses” (1972). In this song, the guitar is tuned to an open major chord, a category of tuning used on over half of Mitchell’s songs for guitar. The unique voicing used on this song—the guitar’s strings are tuned to G–G (an octave above)—

#### **Biography**

Rachel Hottle is a PhD candidate in music theory and gender and women’s studies at McGill University in Montreal. Her research interests include embodiment, ontologies and epistemologies of music theory, timbre, and critical pedagogy. She holds an M.A. in music theory from McGill University and a B.A. in music and biology from Swarthmore College. Her master’s thesis examines the interactions of form and narrative in the music of American singer-songwriter Joanna Newsom. Rachel has presented her work at several regional chapters of the American Musicological Society and the Society for Music Theory, as well as the annual meeting of the SMT. She is currently working on her dissertation, which investigates the relationships between bodies and

D–G–B–D—affords particular sonic possibilities, including unique chord voicings and spacings, distinctive timbres, and complex sonorities that push the boundaries of tonality.

Music theoretical research has historically privileged formalist approaches that interpret music as a static text. By focusing on the embodied experience of composing with an instrument, this project contributes to the growing corpus of work that emphasizes music as a dynamic, living cultural performance.

## Stephanie Probst

### “From Blind Writing to Hyper-Visuality: Intersections between Music, Dis/Ability, and Tactile Interfaces in (Musical) Typewriters”

#### Abstract

As Friedrich Kittler prominently relates (1986, e.g. 278, 281), early technological developments towards the typewriter were intricately linked with aspirations of facilitating writing and reading for the blind. Pioneering figures include blind pianist Maria Theresia Paradis and inventor Wolfgang von Kempelen, or the collaboration between the blind friends Louis Braille and Pierre-François Foucault. Another crucial reference for the design of typewriters famously comes from music, specifically the keyboard as a haptic interface that should afford an easy transition for the hands of (female) amateur pianists (Kittler 1986, Dolan 2012). Triangulating these origin narratives and revisiting various inventions from across the 19<sup>th</sup> and 20<sup>th</sup> centuries, this talk zooms in on the intersections between typewriter design and the sensory conditions of blindness, visuality, and tactility on the one hand, and aurality and musical skill and application on the other. Beyond highlighting dependencies and influences, I seek to disentangle different strands of desires and technological and notational affordances.

Thus, exploration of the abilities and needs of blind writers and suitability of different interfaces at once informed a more general understanding of physiological and cognitive conditions in the interaction with new technology and ultimately led to engineering enhancements. But when considering the desire to make the typed artefact legible to blind and sighted readers alike, technological solutions soon diverge. The case becomes more intricate still in the context of rendering music notation. As music was recognized as a suitable activity for the blind from the beginning of their institutionalized education, approaches to

instruments through the lenses of disability studies and phenomenology.

#### Biography

Stephanie’s PhD-dissertation (Harvard University, 2018) investigated intersections between music theory, psychology, and the visual arts in theories of melody in 1920s Germany. Her current book project examines tactile interfaces for musical writing and reading in notational devices for blind musicians, musical typewriters, melographs, and music rolls for player pianos.

Stephanie has served as co-organizer and blog-editor for the SMT interest group for the History of Music Theory. Recent articles appeared in the *Journal of Musicology*, *SMT-V*, and *Music Theory Online*, and in 2021 she co-edited a themed issue on “Visual

provide study materials and scores accompany first steps towards assisted linguistic writing and reading. But unlike models for textual typing, the operation of the few typewriters developed for setting music relies heavily on visual control and thereby precludes blind people from their use. Devices for blind music notation meanwhile accommodate an entirely different format of musical representation. Comparing these writing interfaces and the sensory engagement that they afford thereby provides a critical assessment of visibility in music notation and points towards more accessible alternatives.

Music" for the online journal [Kunsttexte.de](http://Kunsttexte.de).

## Noisy Interfaces [1:45pm – 2:45pm, Room 4]

### Joseph Auner "Feedback as Interface"

#### Abstract

Dealing with feedback's echoes, strange resonances, and annoying howls used to be a matter for sound engineers and musicians, but in the age of Zoom corraling what is usually a disruptive and embarrassing intrusion has become everyone's problem. This paper argues that both the transgressive impact of feedback, as well as its potential as a creative resource as evidenced in styles ranging from Hendix and Santana to Japanese and Jamaican Dub, can be attributed to the ways it forces us to become aware of and engage with networks of devices—microphones, amplifiers, speakers, recorders—with all their affordances and quirks. It is as if an assemblage of tools, designed to serve silently in the background, suddenly wakes up and finds its own voice, replacing whatever sounds we wanted to amplify with the sound of the system itself. Crucially this system includes the specific space and configuration of devices as well; and we too also shape the sound with our sound absorbing bodies. In reference to works of electro-acoustic music and sound art by Oliveros, Reich, Kirkegaard, and others, I argue that in manipulating controls and attempting to manage the distinctive sonic qualities of feedback, the sound itself serves as an interface that gives us access to the machineries of the complete system.

That this sonic interface is inherently liminal, obstinate, and playfully unworkable, resonates with composer Robert Ashley's description of feedback as "the only sound that is intrinsic to electronic music,"

#### Biography

Joseph Auner, Austin Fletcher Professor of Music, Dean of University College, Tufts University. His research and teaching focus on Schoenberg and the Second Viennese School, Weimar Berlin, music and technologies, and sound studies. Publications include, "Learning from Contemporary Music," "Schoenberg as Sound Student: *Pierrot's Klang*," "The Stopped Clock: Tape Loops, Synthesizers, and the Transfiguration of Harmony," "Reich on Tape: The Performance of *Violin Phase*," "Weighing, Measuring, Embalming Tonality," "Wanted Dead and Alive: Historical Performance



pointing to its character as “both abundantly available and difficult to control.” But the concept of feedback is similarly both ubiquitous and occluded. While it has been described by Katherine Hayles as the dominant metaphor of our time, the term is strangely invisible, signaled by its absence from the indices of many books on music technology and sound studies, including those where feedback is a central topic. And yet attention to the specific and non-metaphorical emergence of the term a century ago, in writings about electrical circuits where a current literally “feeds back” through a wire, can open up ways of understanding the reflexive networks of sounds, humans, and technologies we inhabit in which all the nodes in the network become permeable, interconnected, and mutually affecting. The experience of feedback as interface can transform in turn our conceptions of the creative process, the work, and ourselves and our environment.

Practice and Electro-Acoustic Music from Abbey Road to IRCAM,” and *Music in the 20<sup>th</sup>- and 21<sup>st</sup> Centuries* Vol. 6. *Western Music in Context: A Norton History*.

## Richard Beaudoin

### “Wax Cylinder Music: Surface Noise as Fluttering Wings in Anna Krushelnytska’s Ukrainian Lament”

#### Abstract

It is customary to listen *past*—or listen *through*—the surface noise produced by early recording and playback machines. The fierce swish that they impart is generally considered separate from the music being recorded. As part of a forthcoming monograph in the *Oxford Studies in Music Theory* series, I listen *with* surface noise, paying close attention to the synchrony and asynchrony between the hissing cycles and the meter of the piece being recorded. My methodology—called *inclusive track analysis* (ITA)—accepts the totality of audible events on a given recording, no matter their origin. This mode of inquiry disrupts the hegemony of notated scores and investigates tracks *as they are*. It recognizes wax cylinders as expressive musical instruments that often operate beyond the control of composers, performers, and sound engineers.

ITA identifies six modes of expressive interaction between surface noise and the recorded performance. One of these—*metaphoric development*—occurs when the hissing patterns on a vocal track reflect the content of the lyric. An exemplar of *metaphoric development* is Anna Krushelnytska’s June 1904 recording of Mykola Lysenko’s “Z moho tiazhkoho sumu.” Lysenko’s lament sets Maksym Slavynskyi’s Ukrainian translation of Heinrich Heine’s poem “Aus meinen grossen Schmerzen”

#### Biography

Richard Beaudoin analyses audio recordings, using his research to produce scholarship and compose new music. His monograph on the unwritten music in classical recordings—*Sounds as They Are*—is forthcoming from Oxford University Press. His research has been published in *Journal of Music Theory*, *Music Theory Online*, *Journal of the Society for American Music*, and *Journal of Aesthetics and Art Criticism*. His music has been commissioned by Claire Chase, Dashon Burton, Annette Dasch, Estelí Gomez, Roomful of Teeth, Boston Lyric Opera, and the

("From my great sorrows"). The subject of the poem—the fluttering wings the narrator attaches to her songs—is imitated by the hissing swishes that blanket Krushelnytska's recording. Far from being constant, the cylinder's 145 surface noise cycles undergo a four-stage evolution that mimics the sound of beating wings. In this recording—which owes creative debts to Heine, Slavynskyi, Lysenko, Krushelnytska, her anonymous piano accompanist, and the wax cylinder itself—the avian word-painting is 'sung' by the cylinder.

Staatstheater Kassel. He is Assistant Professor of Music at Dartmouth College.

## **Workshop: New Instruments [1:45pm – 5:00pm, Holden Chapel]**

### **Habeen Chang**

"Rhythm Games: Musical Instruments or Controllers Without Control?"

#### **Abstract**

How much control over the production of sound must an object provide to be considered a "musical instrument"? Traditional acoustic instruments such as the piano offer full physical control of sound production. DJ turntables and mixers, while not allowing direct modification of the recorded music, give the performer some agency to start, stop, and transform the sounds at will; these DJ tools have too been studied as instruments (Dahl et al. 2010). But, towards the extreme, can just the presence of an interface, even with little-to-no bearing on the music, permit us to call the object a "musical instrument" and to study it as such?

Rhythm games offer a starting point for an answer. Sometimes referred to more precisely as rhythm action or rhythm-matching video games, rhythm games constitute an immense variety of controllers and interfaces intimately tied with musical gameplay, even though the player does not trigger most of the audio events (Austin 2016). From keyboards in *beatmania* to foot pads in *Dance Dance Revolution* to analog knobs in *Sound Voltex*, the ongoing creation of such controllers allows for a ludic playground in which the input charters/mappers can craft a gestural realization of a song bound by the interface specific to that game, which is delivered for a player to perform (Magnusson 2019, Moseley 2016).

#### **Biography**

Alex Habeen Chang is a graduate student working towards a Master of Arts in Music Theory at Boston University. He earned a Bachelor of Arts in Mathematics at Rice University in 2020 and is hence interested in engaging with music research utilizing mathematical or computational techniques. In addition, he is actively involved with the ludomusicology community: his research focus is primarily on rhythm games, as an avid rhythm game player himself.

The loss of agency could be seen as prohibitive to traditional ideas of musical performance, but this loss allows other aspects of musicality to shine through. By freeing these controllers from having their interfaces forced into a one-to-one mapping with a musical parameter, rhythm games allow us to experience and perform music through novel gestures: a fast sequence of unordered pitches can be mapped to a single continuous flowing gesture with the affect of being in-flight (Dogantan-Dack 2011). Playing a rhythm game is performing music analysis, uncovering musical knowledge in the process, and every unique rhythm game controller, like a unique musical instrument, allows for different analysis and different knowledge (Rehding 2016).

## **Alyssa Aska, Klaus Lang, Pablo Mariña, and Martin Ritter**

### **“FRESCOBALDI2: Enharmonic enhancement for keyboard instruments”**

#### **Abstract**

The development of musical instruments has been heavily dependent on the technological capabilities of their time period. Keyboard instruments are no exception, having undergone many developments from the earliest organs in antiquity to the sophisticated 88-key synthesizers we are familiar with now. Traditional keyboard instruments have a limited set of producible pitches because they, for the most part, can not make adjustments to tuning while playing like some other instrument families. Therefore, they were usually restricted to whatever fixed system they were tuned in, each of which had to make concessions to certain intervals or in certain keys (Ripin 1989). Because performers had the desire to play some of these intervals and expand the possibilities of the keyboard, as early as the 15th century, keyboards were developed that allowed enharmonic capabilities, such as through the addition of split keys (Barbieri 2008). These keyboards did not end up becoming as ubiquitous as the 12-note per octave keyboard we are familiar with. Digital technology has made the development of enharmonic and microtonal keyboards much more possible in the last several decades and thus allowing for wide dissemination; however, many of the devices are developed for specific and personal use or are restrictive due to cost and performability (Georg Vogel 2023, Roli 2023).

The authors of this paper have developed a prototype enharmonic extension controller that demonstrates successful proof of concept, called the Frescobaldi2. This prototype attaches to a MIDI organ, resting on the upper half of the manual, replicating the placement of a

#### **Biographies**

*Organon* has four members: Alyssa Aska, Klaus Lang, Pablo Abelardo Mariña Montalvo, and Martin Ritter, and it exists as a research group functioning within the University of Music and Dramatic Arts Graz. The purpose of *organon* is to provide explanatory materials for contemporary organ music, specifically for composers. These materials include texts, images, short video tutorials, concert recordings, as well as a list of works. Their materials demonstrate the general structure and operation of the organ as well as general playing techniques. Contemporary playing techniques are presented and explained in greater depth. In addition, the group

straightforward split key system familiar to many during the 16th century, and through custom-built but transportable software and hardware, allows the performer to play pitches that are not present on the MIDI keyboard. While the first iteration of this device is designed to reproduce the capability of performing all pure thirds in an octave as in some of the initial split key systems, the idea behind the Frescobaldi<sup>2</sup> is to eventually enable complete customization and expandability of the device, leading to a robust enharmonic extension for MIDI keyboards without the need to purchase an additional, specialised keyboard.

## Dan Freeman "Future Instruments"

### Abstract

Between 2000 and 2005 a technological revolution took place in music performance and production. The development of powerful and stable laptops running innovative software such as Ableton Live have made this machine the dominant live instrument in many popular genres. The sonic possibilities of the laptop are essentially limitless, fulfilling the vision of early 20th century futurists, such as Luigi Russolo, who predicted that in the coming century music would expand beyond the limited orchestral timbres of his time and "conquer the infinite variety of noise sounds." The early 21st century digitalization of live performance has, however, presented artists and instrument designers with challenges and this presentation would like to explore three of them. Firstly, since a laptop essentially consists of four sonic tools (instruments, samplers, sequencers and audio effect processing) how can we create an interface that seamlessly integrates them? Secondly, a laptop, like other electrophones over the past century, breaks with thousands of years of traditional instrument building in that the sound generation capacity of the instrument has nothing to do with physical construction of a controller. This disconnection poses challenges in that future instruments should ideally control the four components of the laptop while physiologically enabling the development of virtuosity. Lastly, how can future instruments be environmentally sustainable so that they do not contribute to the "landfill economy" nor rely on increasingly unstable supply chains? Can they also be readily accessible to the areas of the Global South that have historically had much greater difficulty acquiring cutting-edge music technology. As a Latino who has spent years living and teaching electronic music production in Central and South America, this last point is personally very relevant to me. This

continuously pursues ways to expand current compositional tools for organ by researching playing techniques and expanding the instruments and interfaces themselves.

### Biography

Dan Freeman is a producer/bassist and music technologist based in Brooklyn, New York. He is an Assistant Professor at Berklee College of Music as well as on the faculty of The Juilliard School and New York University's Clive Davis Institute of Recorded Music.

Born in Boston to generations of musicians in his mother's native land of Nicaragua, he attended Harvard College, graduating in 1997 with an *A.B.* in History. After graduation, he moved to New York City and worked for over fifteen years as a session bassist performing in a myriad of venues ranging from underground Brooklyn loft parties to Broadway pit orchestras and Carnegie Hall.

presentation will also include a performance on a new instrument I am currently developing known as "Blinky." Blinky is a prototype of a digital live performance interface which strives to integrate an instrument, sampler, sequencer and audio effects processor into a coherent whole and to move laptop performance away from any use of the visual while exploring virtuosity and greater use of the body.

Since 2005 he has specialized in integrating laptops using Ableton Live and acoustic instruments and this has led to performances and workshops globally at venues, festivals and universities. In 2018 he designed a prototype instrument for digital live performance known as "Blinky" which combines a sampler, a sequencer, audio effects processing and a grid interface.

## **Sabe**

"How does the voice, the body and the no-input mixing interconnect in a live audiovisual performance?"

### **Abstract**

In a performance, gesture has a fundamental role. When we talk about a musical gesture, we immediately think of the body. The hand of a singer slowly rising as she is signing a crescendo would give to the audience a visual cue of the direction or intensity of the sound. The posture, the movements and the implication of the body are in service of the ear. However, a performer cannot rely only on a simple spatiotemporal movement to carry the meaning of the piece. It's the personal musical expression that will enhance the musical gesture. Along with bodily manipulation of instruments, the use of emblems and affect displays are some of the tools that can be used to increase meaning. In that sense, the use of visual support is another effective tool to support a musical gesture. There is an undeniable affiliation between the morphology of sound and video. Furthermore, to convey a meaningful performance with intent, extramusical components joined with gestures are primordial.

In this presentation, Sabe will demonstrate how she uses textured voice, the unpredictability of the no-input mixing and the videos in a

### **Biography**

Sabe is an audiovisual performer artist from Canada. She uses her voice and a no-input mixing board as a compositional and live tool to create texture and synchronise them to her own textured videos. After graduating from Concordia University with a major in photography, she studied several aspects of tonal music, including guitar and multiple vocal techniques. She fell in love with digital music and enrolled in the D.E.S.S in digital music at the *Université de Montréal*. It is through sound textures

creative-research approach to push her boundaries of the musical gesture in live performance.

that Sabe finds a great freedom of artistic expression. Her studies with the audiovisual artist Myriam Boucher since 2020 were a decisive moment in her artistic approach and therefore open a world of possibilities in which she joins her two passions, music and visual. Sabe draws on her personal experiences to express herself on various societal ills. In her performances, she connects sound and image to create intimate and abstract pieces in which she wants viewers to recognize themselves with their own life experience. Many have said that her creations are contrasted, raw and destabilizing.

## **Alexander Ishov (aka Sasha) and Theocharis Papatrechas**

“PrismaSonus: Unmasking and Choreographing Hidden Nuances in Flute Playing via Microphone Placement”

### **Abstract**

PrismaSonus is an artistic research initiative exploring the relationship between microphone placement, technique, and perception. By placing sensors inside the body of the instrument, this project highlights timbres and microtechniques that are otherwise hidden to performers and listeners. PrismaSonus examines how technology, technique, notation, and listening interact and converge in electroacoustic collaborations, proposing novel ways of creating immersive auditory experiences.

This presentation features the research element of Morphés for Flute and Electronics, presented at Thursday evening’s concert. Project creators Alexander Ishov and Theocharis Papatrechas will:

### **Biographies**

Alexander “Sasha” Ishov is an innovative flutist specializing in 20th and 21st century music, devoted to the co-creation of new acoustic and electroacoustic works, as well as showcasing repertoire that challenges perceptions of the historical canon. As a committed researcher, he explores the

- Demonstrate and analyze the musical and acoustical findings of PrismaSonus using pre-recorded material and live demonstrations;
- Discuss methods for describing and notating electroacoustic flute techniques;
- Share musical applications of technical research;
- Present their collaborative model as a potential option for other performer-composer duos.

In June 2023, the team will expand the live performance version presented at this conference into Morphés II, occupying the 32 loudspeakers of the Experimental Theater at UC San Diego's Music Department. Morphés III will be an online version of the project, mixed binaurally for headphones. Later in 2023, PrismaSonus will unveil an interactive database of electronically-mediated flute techniques that will serve as a modern, interactive resource for flutists and composers taking upon electroacoustic collaboration.

intersection between interface design, pedagogy, and electronics, engaging with issues of design in the practice room, the classroom, and the concert hall. He is currently a DMA Candidate in Contemporary Music Performance at the University of California San Diego, and holds the Aspen Contemporary Ensemble flute fellowship position.

Theocharis Papatrechis is a composer and sound artist interested in utilizing technology to expand sonic possibilities and engage listeners into immersive artistic experiences. Having obtained a Ph.D. in Music from UC San Diego, he is currently holding the position of Postdoctoral Scholar at Qualcomm Institute of CalIT2. Converging research on environmental science, acoustic ecology, and audio arts, through data-driven sonification, his work investigates the impacts of extreme events on the acoustic signatures of underwater and remote terrestrial environments.

## Luciano Azzigotti and Jack Adler-McKean

"Electroacoustic resonators in *Incursion*"

### Abstract

Resonances in brass instruments are created not through blowing streams of air through the instrument as might be logically inferred, but rather using an air stream to vibrate the lips, which in turn resonate the air already present in the instrument, resonances which then radiate outwards via the bell. In *Incursion*, a work for solo extended tuba following a long-term collaboration between composer Luciano Azzigotti, and tubist Jack Adler-McKean, a feedback loop system provides an additional source of resonance for the air contained within the instrument, which, given the fact that it does not rely on use of the lips, can radiate outwards via both the bell and the mouthpiece.

### Biographies

The work of the Swiss-based Argentinian composer Luciano Azzigotti is characterized by the invention of systems where a specific type of relationship between instruments, beings and the environment can collide. He is currently teaching Multimedia Composition at Haute école de musique de Genève and UNTREF (Buenos Aires), and is a PhD candidate at the Hochschule der Künste Bern / Musikhochschule Freiburg.

Jack Adler-McKean promotes the tuba family through collaborations with ensembles, composers, and academic institutions. Recent projects include performances with Klangforum Wien, music theater productions at the Luzerner Theater, collaborations on new solo works with George Lewis and Sarah Nemstov, premières at the Darmstädter Ferienkurse (2018 scholarship prize winner), and recitals in Buenos Aires and New York, as well leading tuba masterclasses in Jihlava, composition



seminars in Malmö, and writing reviews for *TEMPO* and *Music and Letters*. His first book *The Playing Techniques of the Tuba* was published by Bärenreiter in 2020.

## **Techno-Vocality [1:45pm – 3:15pm, Room 6]**

### **Cathy Lucas**

“Performing speech: Voice as Instrument in Wolfgang Von Kempelen’s Mechanical Speech Project”

#### **Abstract**

In this paper, I propose a ‘new organological’ reading of Wolfgang Von Kempelen’s speaking machine to shed light on Early Modern analogies between the voice and musical instruments, and to consider the character of the expertise required for the performance of mechanised speech on the device. Historiographically, the speaking machine has often been placed alongside other automata as a material repository for new kinds of mechanically codified knowledge about the body. More focused histories of speech imitators have followed 19<sup>th</sup> century mechanist Robert Willis in highlighting how, in contrast to later acoustical devices, Von Kempelen’s machine was closely modelled on human vocal physiology. In the first part of this paper, I use Von Kempelen’s published manual on the mechanism of speech (1791) and both historical and modern-day replicas of his instrument, to highlight the role of musical instruments in the design, and to draw attention to the importance of practiced, gestural knowledge for ‘playing’ the machine. Much more than the mechanised sum of its parts, speech here was a collaboration between human performer and moulded matter. Read in this way, the device registers an epistemology of speech as a skill that could be learned, developed, and perfected, an intervention I consider, in the final part of the paper, in relation to contemporary debates around the origin, development, and status of language and speech.

#### **Biography**

Cathy Lucas is a musician, producer and PhD researcher living in London. She is based in the Department of Science and Technology Studies at UCL and the Science Museum, and is currently a visiting fellow at the Smithsonian Institution working with their acoustics and electricity collections. Her research interests include sound and communication technologies, voice science, acoustics, and music in the nineteenth century, and she has a particular interest in exploring the connections between musical and scientific instruments. Cathy has also spent over a decade collaborating on London’s experimental music scene,

chiefly as the band leader and producer of art-pop group Vanishing Twin. More recently she has combined her research and musical interests in projects to integrate sound into storytelling about the history of sound technologies.

## **Will Mason**

### **“Holly, Plus Whom?: The Holly+ Deepfake and Musical Labor under Artificial Intelligence”**

#### **Abstract**

In July 2021, the electronic musician and scholar Holly Herndon launched Holly+, a vocal deepfake modeled on her singing voice. Holly+ is powered by an artificial intelligence engine trained on recordings of Herndon’s voice; it was created in collaboration with Herndon’s partner Mat Dryhurst, and Yotam Mann and Chris Deaner of Never Before Heard Sounds. Holly+ is an example of “timbre transfer,” where a deep learning engine is used to map the timbre of a source sound onto the timbre of a target sound. Holly+ is also an art piece unto itself: Herndon has placed questions of vocality and identity at the fore of the project. “The voice is inherently communal,” she wrote in announcing Holly+, “learned through mimesis and language, and interpreted through individuals. In stepping in front of a complicated issue, we think we have found a way to allow people to perform through my voice.” A Decentralized Autonomous Organization (DAO) established by Herndon owns the intellectual property for works created using Holly+ and can govern their usage and collect royalties.

My presentation will introduce Holly+ as outlined by Herndon and Dryhurst. I will consider what is at stake if Holly+ is understood as an instrument, and perhaps *merely* as an instrument. Such a view illuminates some labor implications of the technology that are simultaneously much less novel and much more urgent. One of the most provocative questions Herndon asks is whether her vocal deepfake means someone else could perform a Holly Herndon concert in her stead. While the DAO helps address intellectual property concerns—a vital consideration in the age of the Blurred Lines lawsuit, to be clear—

#### **Biography**

Will Mason is Associate Professor of Music at Wheaton College in Norton Massachusetts, where he teaches courses in music technology and music theory. He is co-editor of the forthcoming *Oxford Handbook of Spectral Music*, and is at work on a monograph about metaphors of construction in audio recording. He is also active as a composer of electroacoustic music, as an audio engineer, and as a jazz drummer.

the questions about *labor* that the Holly+ team have raised will require urgent thought as AI-powered timbre transfer technology continues to develop.

## Zeynep Bulut

### “Biosensing Musical Interface As Tactile Speech”

#### Abstract

This talk will discuss biosensing musical interfaces (such as the BioMuse, created by Benjamin Knapp and Hugh Lusted in 1988, the Lady’s Glove, devised by Laetitia Sonami in collaboration with Paul DeMarinis in 1991, and the Xth Sense, conceived by Marco Donnarumma in 2010) as a case of tactile speech. Referring to histories of vibrotactile communication and speech recognition and synthesis (Mills 2011-2012, Parisi 2018, Mills & Li 2019) and digital health studies (Schüll 2016), I suggest that biosensing musical interfaces are both touch-driven and voice and speech driven technologies.

Biosensing musical interfaces are interactive and kinetic systems. They comprise sensors that detect performer’s physical gestures and bioelectrical or biophysical signals, hardware, and software that amplifies, filters, and digitizes the signals and translates them into audio. With this set-up, they interactively shape bodily gestures, signals and sounds. The interfaces have been explored in relation to human-computer interaction, digital musical instruments, affective computing, machine and human learning, assistive technology, and music and wellbeing.

In media and communication studies, tactile speech is considered with respect to hearing and speech technologies developed for blind, deaf and hard of hearing people. Some of these technologies include hearing gloves and signing gloves. Wearable technologies designed for monitoring heart rate, movement, and sleeping patterns also operate on the basis of tactile transmission of bodily signals. The technical procedures and the prosthetic aspects of tactile speech technologies, wearable health technologies, and biosensing musical interfaces demonstrate similarities. However, their contexts, applications, and cultural implications are different. Tactile speech technologies such as signing gloves aim at functional translation and linguistic communication by using auditory and verbal tools. Wearable health technologies quantify bodily signals and help assign particular meanings to numeric

#### Biography

Zeynep Bulut is a Lecturer in Music at Queen’s University Belfast. Prior to joining the faculty at QUB, she was an Early Career Lecturer in Music at King’s College London (2013-2017), and post-doctoral research fellow at the ICI Berlin Institute for Cultural Inquiry (2011-2013). She received her PhD in Critical Studies/Experimental Practices in Music from the University of California, San Diego (2011). Her research interests include voice and sound studies, experimental music, sound and media art, technologies of hearing and speech, voice and environment, and music and medicine. Her first manuscript, titled, *Building a Voice: Sound, Surface, Skin* (under contract with Goldsmiths Press), explores the emergence, embodiment, and mediation of voice as skin. Her articles have appeared in various volumes and journals including *Perspectives of New Music*, *Postmodern Culture*, and

classifications. Biosensing musical interfaces do not necessarily provide functional translation or linguistic exchange. Exploring expression and stimulation through intentional variation and control of physical gesture, they suggest a different case of tactile speech.

Addressing the convergences and divergences across these technologies, this talk will examine how skin and voice can be treated as mediums for stimulation, expression and exploration as well as for articulation, computing, and translation, and how biosensor performances evoke voice as skin, as a multi-sensory interface, which prompts revisiting what we mean by mediation and communication.

Music and Politics. Alongside her scholarly work, she has also exhibited sound works, composed and performed vocal pieces for concert, video, and theatre, and released two singles. Her composer profile has been featured by British Music Collection. She is a certified practitioner of Deep Listening, and project lead for the research network, Music, Arts, Health, and Environment (MAHE) supported by the Economic and Social Research Council's Impact Acceleration Account at QUB.

## **Stefan Greenfield-Casas**

### **"Virtual Ventriloquism: The Live-2D Hyperreal"**

#### **Abstract**

Since 2020, VTubers, streamers who use a motion capture animated model while they stream, have taken the internet by storm. On October 20, 2020, Hololive Production's Gawr Gura became the first VTuber to reach one million subscribers on YouTube; on February 16, 2022, the VTuber Ironmouse became the most subscribed-to streamer on all of Twitch, with over 95000 paying subscribers. While these VTubers are, as with most streamers, well-known for playing games on stream, Hololive—the most popular VTuber agency—members in particular are known for another reason as well: their status as "idols," and the songs they produce and sing.

In this paper I argue that part of the reason for Hololive's success is based around its talents' voices and that their branding as idols highlighted the voice as a fetish object that tethers the "live 2D" virtual model to the material "real" world. Furthering Hayley Fenn's recent claim that puppets afford a kind of "inherent musicality" (2022), I draw from theories of voice (Barthes 1977; Garza 2022), idol culture (Richardson

#### **Biography**

Stefan Greenfield-Casas is Visiting Assistant Professor of Music Theory at the University of Richmond. His research focuses on the intersection(s) of music, myth, memory, and media, recently by way of the classical arrangement and concertization of video game and film scores. He has presented his research at various conferences across the US, Europe, and Asia, including meetings of the International Musicological Society's Music and Media

2016; Bridges 2022; Lo 2023), and Japanese media (Otsuka 1989; Steinberg 2012), to show that the voice becomes an important element in bringing these virtual puppets to life. This extends beyond the VTuber avatar, however, to construct the “media mix” that fans buy into and in which they participate. This includes fans purchasing merchandise (voice packs, limited edition albums), attending virtual karaoke sessions, and even using the talents’ voices or music in their own creations (e.g., fan-produced games). I conclude by showing how this vococentric model has been both upheld but also challenged and critiqued by other VTubers, particularly independent VTubers who are not managed by an agency.

Study Group, the Royal Musical Association's Music and Philosophy Study Group, the American Musicological Society, Music and the Moving Image, Ludomusicology, and the North American Conference on Video Game Music. Stefan's publications can be found or are forthcoming in The Music of Nobuo Uematsu in the Final Fantasy Series, The Oxford Handbook of Arrangement Studies, The Oxford Handbook of Video Game Music and Sound, and Translight: A Contemporary Gaming Magazine.

## **Networked Communities of Instrumental Theory and Practice [3:30pm – 5:00pm, Room 9]**

### **Ian Hattwick**

“Musicking on the Web: An Investigation into Current and Emerging Practices”

#### **Abstract**

The internet as a medium for musical performance has a long history, including the work of the foundational network music group the Hub [1], the development of telematic music performance [2], the rise of laptop orchestras [3], and the focus on remote musicking arising from the Covid sequestration. At the same time, the internet has profoundly affected the experience of professional musicians, displacing recorded audio as the primary validation of artistry, and challenging it with emerging practices in online multimedia documentation, physical and software interface design, and hypothetical interest in performance in XR or the Metaverse.

#### **Biography**

Ian Hattwick is an artist, researcher, and technology developer whose work focuses on the creation and use of digital systems for professional artistic performance. He is particularly interested in collaborative performance and the creation of multimodal hardware systems to explore and

This paper presents a framework for examining internet-based musical experiences which contextualizes them within both their technical and social infrastructures. The technical affordances of the internet have played an outsized role in the reshaping of musical practice. The widespread dissemination of knowledge regarding musical performance and production has created a broad base of technical literacy on existing conceptualizations of practice. At the same time there is a growing interest in alternative models of musicking, whether towards models of collage/assemblage/remix techniques, [4] or evolving practices in designing musical systems which leverage data-driven practices and algorithmic techniques such as artificial intelligence and deep learning.

Equally important is how we think and talk about music online, and how we identify with existing and emerging communities of practice. This affects many different aspects of our online identities. One way is how legitimacy or authority is created which doesn't rely on traditional musical skills. Instead, legitimacy can be leveraged from sources such as high-prestige technical domains (coding or science), pedagogy-entertainment (analogous to infotainment), or personality-driven influencer models.

To develop this framework we present case-studies on contemporary musicking on the web, focusing both on widespread semi-professional experiences such as collaborative DAWs<sup>1</sup> and telematic studio work, as well as smaller communities of dedicated internet musicians focused on live coding<sup>2</sup>, browser-based instruments<sup>3</sup>, and telematic music performance. Our goal throughout is to investigate how musicians are reinterpreting and reinventing musical experiences in order to identify opportunities for meaningful musical experiences in the Web.

## **Kate Galloway**

“Instrumentality and the Digital Animal: Audiovisual Memes, Synthesized Animals, and the Timbral Treatment of the Nonhuman in Viral Media”

### **Abstract**

On TikTok in August 2021, as I scrolled down through my recommendations, I encountered the slow reveal of cute puppies as watermelon rinds open on cue, choreographed to a stylistic cut in the remix mashup of Harry Styles' "Watermelon Sugar" with "Seaside" by SEB, listened to the autotuned timbral manipulations of Haiku the Husky's vocalizations, and observed the choreomusicalities of a

facilitate social and embodied interaction. He teaches music technology at MIT, directs FaMLE, the MIT Laptop Ensemble, and is CTO for Heather Interactive, a music experience design startup.

### **Biography**

Kate Galloway is Assistant Professor in Ethnomusicology and Games at Rensselaer Polytechnic Institute where she is cross-appointed to the Music, Electronic Arts, and

tardigrade, a phylum of eight-legged segmented micro-animals, where their movement in their environment was synched to a pulsing and wobbly soundtrack of synth timbres. Memes are a fascinating field of musical play. These are not just animal memes that happen to feature sound and music, rather they are short-form audiovisual internet objects that are intentionally exploring ideas of musicality, vocality, performance through timbre, practices of remix, internet interfaces, and stagings of the nonhuman. These creative and participatory digital environments where musicking animals are curated and dwell call into question the human desire to connect with, perform, and even control the nonhuman animal across digital spaces of reality and representation. And like Alexandra Daisy Ginsberg's video installation *The Substitute* (2019), these internet cultural objects interrogate humanity's "preoccupation with creating new life forms, while neglecting existing ones" (Ginsberg 2019). Drawing on the aforementioned case studies—the "Watermelon Sugar" TikTok remix challenge, the account of Pet Influencer Haiku the Husky (@haikuthesusky), and the social media and recording project *Animals and Synthesizers* (@animalsandsynthesizers), I offer an exploration of the concerns and discomforts, the interfaces and instrumentality, and the affordances and choreographies around the ways in which we treat animals for human use across audiovisual internet culture. This presentation engages the intersection of multispecies ethnography, digital culture, and platform and interface studies to interrogate how animals illuminate debates about instrumentality within sonic cultural phenomena of the internet and human conceptions of musicality and listening.

Games and Simulation Arts and Sciences programs. Her research and teaching address sonic responses to environmentalism, sound studies, digital culture and interactive media, posthuman and animal studies, and Indigenous musical modernities and ecological knowledge. Her work is published in *American Music*, *The Soundtrack*, *Ethnomusicology*, *MUSICultures*, *Tourist Studies*, *Sound Studies*, *Feminist Media Histories*, *Popular Music*, and *Twentieth-Century Music*. She has co-edited two special journal issues (*American Music* and *Twentieth-Century Music*) with K. E. Goldschmitt and Paula Harper that address the creative and social phenomena of internet music communities and practices of listening to the internet.

## **William O'Hara**

### **"Solfeggio Tones: Digital Mythology and the History of Music Theory"**

#### **Abstract**

"Solfeggio tones" are a recent online phenomenon based on a mélange of ancient ideas. Named for the practice of solfège but unrelated to it, they are a set of seemingly random frequencies that are claimed to have healing powers. Largely through direct copying, solfeggio tones have proliferated through music and social media platforms (Spotify, TikTok, YouTube, etc.). The websites that promote them trace several spurious

#### **Biography**

William O'Hara is assistant professor of music theory at Gettysburg College. He earned his Ph.D. from Harvard University, and previously taught at Tufts

origins—from ancient knowledge lost or suppressed by musical or ecclesiastical authorities, to more recent numerological “discoveries” by homeopathic healers—and assign specific frequencies to healing actions such as “liberating guilt and fear,” “awakening intuition,” and even “DNA repair.” Their advocates seek attention and profit by offering a new and passive approach to wellness and healing based on listening to specific long tones or music in certain tunings.

While they may resonate with a long tradition of medicalizing musical sound (Gouk 2005), solfeggio tones do not only fall therapeutically flat; they represent larger trends in contemporary society. As Hannah Gais (2019) has written, psychics and mystical healers tend to arise in moments of societal crisis, aided by mass communication technologies. Robin James (2020) argues that solfeggio tones are an updated version of Plato’s metaphors for music as the organizing principle of an ideal society, and a pernicious alignment of personal wellness with societal stratification and power.

Building on Ruth Emily Rosenberg’s (2021) account of the conspiracy theories that surround 432Hz vs. 440Hz tuning, this presentation traces how real concepts from the history of western music theory—including overtones, hexachord solfege, and the division of the monochord—are blended with ideas appropriated from both New Age wellness fads and traditional global spiritualities, in an ecosystem of social media channels, enthusiast websites, and online boutiques. Arguing that social media has itself become an instrument for both inventing and circulating theories about music, sound, listening, a healing, I show how music-theoretical facts are mixed with fabrications (echoing but distorting music theory’s own origin myths), and argue for continued public engagement in order to understand how musical misinformation filters contemporary aesthetic and political topics through stubbornly persistent historical myths.

University. His research interests include digital musicking, circulation, and reception (with essays on these topics published in *Music Theory Online* and *Analtica: Rivista online di studi musicali*); tonal analysis and the history of theory (*Music Analysis, Music Theory & Analysis, The Oxford Handbook of Public Music Theory*, and *Antoine Reicha and the Making of the Nineteenth Century Composer*) and music in contemporary media (*Oxford Handbook of Sound & Music in Video Games, Music and the Moving Image*). He is currently drafting monographs on recomposition in the history of music theory, and borrowing, bricolage, and the metaphor of song in the music of American composer Amy Beach.



## KEYNOTE 3: Infrastructures [5:30 – 6:30pm, Yenching Auditorium]

### Sumanth Gopinath

“Digital Music Commodity Chains and Asset Chains: Listening to the Warp and Woof of the Capitalist World System” (paper co-authored with Eric Drott)

#### Abstract

This paper proposes a new approach to the study of digital music, by adopting a well-established method of world-systems theory: commodity- or value-chain analysis. Formulated to track shifts in the global division of labor and across the *longue durée*, prioritizing the differential apportionment of surplus value across vast territorial expanses and differential functions in the production process, this framework has proven insightful in light of the complex reticulations that supply chains have undergone since the 1980s, a development facilitated by advances in digital media and technologies.

Applied to music, commodity chain analysis illustrates how digital music has increasingly been integrated into many physical objects, not just playback media like compact discs, but also such seemingly mundane commodities as musical toys or (to cite our case study) musical greeting cards. The card in question—“No Big Deal,” published by Hallmark, featuring an excerpt from American Authors’ 2013 song “Best Day of My Life”—exemplifies this trend, being the product of a number of intersecting commodity chains: card stock, ink, and embedded integrated circuits and electronic components (microprocessors, storage devices, LEDs, small speakers).

However, the “No Big Deal” card is not just a tangible good requiring production, storage, and shipment for exchange on the market. The card also embodies a number of so-called “intangibles,” a broad category including copyrights, patents, and trademarks, whose commercial status is largely a function of intellectual property law. We call this an “asset chain,” which should be understood as working in parallel with commodity chains. By highlighting the point at which these two distinct value chains converge, this paper makes a contribution to both music studies and world-systems analysis. If the latter has been attentive to the movement of physical goods across the striated space of global capitalism, it has arguably neglected the role of assets and assetization in contributing to both the use- and the sign-value of finished products. Conversely, music studies has long documented the changing fates of

#### Biography

Sumanth Gopinath is Associate Professor of Music Theory at the University of Minnesota Twin Cities. He has written or co-edited books on the ringtone industry (*The Ringtone Dialectic: Economy and Cultural Form*, 2013), mobile music studies (*The Oxford Handbook of Mobile Music Studies*, 2014), and the music of Steve Reich (*Rethinking Reich*, 2019). He is the leader of the independent Americana band The Gated Community.

music as intellectual property, but until recently has paid less attention to the material base upon which this musico-legal superstructure is constructed.

## **SATURDAY EVENING**

### **Concerts 3a + b [7:30pm and 9:30pm, HYDRA @ Paine Hall]**

\* Early concert at 7:30 features student improvisations and fixed-media compositions, late concert at 9:30 features pieces by Spiropoulos and Tutschku

#### **Hans Tutschku**

*Herkunft-entschlüsseln-entbehren* (2019) for cello and 9-channel live-electronics [ca. 20m]

#### **Biography**

Hans Tutschku is a composer of instrumental and electroacoustic music. In 1982 he joined the "Ensemble for intuitive music Weimar" and later studied theatre and composition in Berlin, Dresden, The Hague, Paris, and Birmingham. He collaborated in film, theatre, and dance productions and participated in concert cycles with Karlheinz Stockhausen. Since 2004 he has directed the electroacoustic studios at Harvard University.

Improvisation with electronics has been a core activity over the past 35 years. He is the winner of several international competitions: Hanns Eisler Preis, Bourges, CIMESP Sao Paulo, Prix Ars Electronica, Prix Noroit, Prix Musica Nova, ZKM Giga-Hertz, CIME ICEM, and Klang!. In 2005 he received the culture prize of the city of Weimar. Besides his regular courses at the university, he has taught international workshops for musicians and non-musicians on aspects of art appreciation, listening, creativity, composition, improvisation, live electronics, and sound spatialization in more than 20 countries.

#### **Program Note**

The question of where we come from, as humanity or as individuals, is always on our minds. At a time when severe living conditions at the place of family roots cause many to set off in search of better places, problems of origin, belonging, integration, and authenticity are strongly present in our perception.

In the dialogue between solo instrument and electronics, the composition processes these themes as transformed sound identities with recurring musical motifs that have to orient themselves again and again in new contexts. Necessary

reorientation and the urge to preserve one's original qualities create tension but also opportunities to grow.

## Georgia Spiropoulos

*Roll... n'Roll... n'Roll* (2015) for harp and electronics [ca. 20m]

### Biography

Georgia Spiropoulos is a composer, director and multimedia artist. Her work includes acoustic, electronic and mixed compositions, multimedia spectacles and audio-visual installations. It is characterized by its dramatic intensity and contrast between a powerful physicality and a meditative use of sound. An important part of her work includes multimedia spectacles and sound-video installations where the different arts co-exist: music, video, performance, physical movement, scenography and lighting. She constructs these music-led interdisciplinary projects at multiple artistic levels, separately and in parallel, as a composer-director-video artist. In these works, the performative-choreographic dimension of music performance is developed as a direct consequence of the sound production, its dramaturgy and urgency.

Georgia Spiropoulos taught music composition and electroacoustic music at McGill University in Montreal, Canada (2017–18) where she held the Schulich Distinguished Visiting Chair in Music and was the acting director of the Digital Composition Studios (DCS). She has been a Civitella Ranieri Fellow, the winner of the Villa Médicis Hors-les-Murs Award for New York City, and was named Chevalier de l'Ordre des Arts et des Lettres de la République Française. She has also worked as a research composer at IRCAM on the project "Mask: The voice transformations and computer tools for live performance" (2008). She has received many commissions (French Ministry of Culture, IRCAM-Centre Pompidou et al.) and her work has been played by numerous ensembles (Ensemble Intercontemporain, L'Itinéraire et al.) in international venues.

### Program Note

"Roll" must be understood here within a wide field of meanings: as (sonic) flux, (perpetual) movement, (planetary) rotation, a whirlwind (or a whirling dervish), rocking (as of a newborn baby), undulation (a swell crossing the ocean), twisting, shaking, winding up, scrolling... In this cycle of pieces written for Hélène Breschand, the classical harp is a polymorphic instrument, at once acoustic and "prepared" by the computer. The harp becomes both a spatial instrument (space of listening, space of composition, an intimate sonic space projected outward) and a micro-orchestra, an archaic instrument and a sonic mobile.

A succession of mobile-forms or form-states, spatialized, repeated and disordered, stretched (in terms of their sonic spectrum as well as in time and space), *Roll...*

*n'Roll... n'Roll* is a catalogue of sonic objects, a micro-geography of gestures and textures, which plays on clichés the better to subvert them.

## ALL THREE DAYS

### Audio-Visual Installations @ Harvard Department of Music

#### Sebastian Adams

##### *Stolen Music*

##### Program Note

*Stolen Music* is a performance and online repository which aims to be both a work of art and an ideological attempt to overthrow copyright law by making the case that associating ownership of intellectual property with an individual is misguided and outdated.

Following the tradition of Plunderphonics and other musical piracy, it is composed of uncleared samples and is illegal in the European Union (although covered by fair use provisions in the United States).

In the existing version of *Stolen Music*, written for the closing concert of the IRCAM Cursus programme, material from pieces presented by other composers on the Cursus was stolen and combined with a corpus of 1000s of YouTube videos to create audio-visual collages. Most were approximately 1 minute long, serving as transitions to cover the production changeovers needed between pieces in the concert and undermine the feeling that the concert comprised multiple pieces composed by individuals. The final part involved a presentation, followed by kazoo karaoke sing-along with the audience where I tricked them into believing that the U2 song *I Still Haven't Found What I'm Looking For* was an ancient Irish folk song (and the kazoo an Irish instrument), and that we were playing along using an AI-driven karaoke machine (really a fixed-media video file).

##### Biography

Sebastian Adams 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](http://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

However, *Stolen Music* is designed to be context-dependant and any new performance situation will require an entirely new version which hewn from the same collection of Max patches and Python scripts. For the *Instruments, Interfaces, Infrastructures: An Interdisciplinary Conference on Musical Media* conference, I present a new version of *Stolen Music* as a standalone video/sound installation.

## **Stefanie Egedy**

### *BODIES AND SUBWOOFERS (B.A.S.)*

#### **Program Note**

Pursuing the idea and practice of a 'vibrational experience' and the therapeutic effects (reduction of stress and anxiety) of low-frequency sound and subwoofers, Stefanie Egedy builds a body of work entitled *BODIES AND SUBWOOFERS (B.A.S.)* - a series of site-specific installations and concerts with compositions produced for each location. Analyzing the space specificities, she arranges subwoofers and selects low-frequency sound waves with consideration to their transparency (only noticed through tactile perception) and to the ones that create other sounds such as resonances and reverberations while interacting with the space architecture. A proposition for the whole body to be in contact with and shaken by different types of sonic vibrations, experimenting with bodily and perceptual impacts.

Each B.A.S. has its own subwoofer arrangement that is calculated following the space dimensions and subwoofer type. With these measurements, one can create "living zones" (with higher or variations of acoustic pressure) and "dead zones" (no acoustic pressure). The liveliness of an area is determined by the expression of the acoustic pressure throughout a region, where bodies can or cannot perceive the acoustic signal with their skin/body parts.

Invisible to the eye yet immediately noted by the body, the sonorous touch embraces bodies and spaces. These long sound waves are capable of filling the air with pressure while caring for the bodies. To feel touched and hugged by sound waves, the skin feels and the body listens to a sound massage enabled by low-frequency sound waves and subwoofers. The invisible touch of sound.

previously studied in Dublin and Vienna.

#### **Biography**

Stefanie Egedy investigates sound as a composer of conceptual pieces, music, commissioned works, and electronic music. Using analog and digital synthesis, she researches possibilities with low-frequency sound, bodies, and subwoofers. Her work stems from installations to live performances as sonic propositions - building a body of work entitled '*BODIES AND SUBWOOFERS (B.A.S.)*'. Sub-bass, bass, infrasound, subwoofers, and their capacity to be present in space, are the foundations of her artistic practice. Besieged by this scenario, Egedy articulates the cross-over between sonorous and musical language to investigate sonic communication between beings.

Egedy has presented in Berlin at CTM Festival, Berghain, KW Institute for

Contemporary Art; Kunstfest (Weimar); Zentrale (Viena); Patchlab Festival (Krakow); Museu de Arte Moderno (Buenos Aires): in Brazil at museum MIS and Festival Novas Frequências (Rio de Janeiro); and is part of the EU Creative Europe-supported SHAPE+ 2022-2023 artist roster.

## **Weilu Ge and Kelon Cen**

### *FEED 3.0*

#### **Program Note**

FEED is an interactive installation that explores the notion of the self and the fragmented existence of bodies and sensorium. Combining video game elements, spatial soundscape, and transmedia storytelling, FEED 3.0 takes the audience on an immersive audiovisual journey in a panopticon-like complex. While a tracking apparatus constantly scans and monitors everything in the space as if an autonomous being with many eyes, the audience plays the role of a computer mouse, a curious listener and user walking on a long scrolling feed, passing by various characters in their internet cubicles, and potentially getting lost in this internet labyrinth full of joyful colors and sound events.

The experience consists of multiple layers of pre-composed and generative audiovisual narratives. Through actively listening and improvising with different media objects and spaces, the audience will create their own spatial storylines in a morphing mediascape. The project aims to construct an immersive and interactive environment that invites the audience to critically observe and question their everyday living situation in a post-digital age. FEED is part of our Doppelgänger series, an ongoing artistic research project examining various systemic and social-political issues in the context of surveillance capitalism.

#### **Biography**

Weilu Ge is a composer and media artist based in Cambridge, MA. She works with various media forms, from concert music, installation to video and innovative technology. Her recent practice explores theatrical expressions of sonic, visual and spatial media in interactive and immersive spaces, taking composition and space as critical means to examine relationships between power, system, body, and technology in a social-cultural context. Weilu's works have been performed and exhibited internationally. She is currently a PhD candidate in Creative Practice and Critical Inquiry at Harvard University. Weilu holds an Interschool MFA in

Art and Technology & Composition & Experimental Sound Practice with a concentration in Integrated Media from the California Institute of the Arts.

Kelon has worked in many forms of media, from traditional academic art paintings to digital animation and programming. He has explored animation in film and digital forms along with its integration into video installation, dome, and theater projection. "Fluidity" is the word to describe his mastery of the smooth lines in his calligraphy and paintings, the animation of metamorphosis and body movement, and sound-driven editing. His works are influenced by surrealism and have been exhibited in various festivals, including Electronic Language International Festival in São Paulo, Animamix Biennale in Hong Kong, Japan Media Arts Festivals, etc.

## **seah (aka Chelsea Heikes)**

*Conduits of the Hydrosphere: Dinosaur Piss Runs Through Our Veins*

### **Program Note**

The provocation of this title comes from a statement I made nearly 15 years ago while intensively studying Butoh, Body Weather Laboratory, and Noguchi Taiso. My basic premise is that all the water on the earth is all the water that ever was and ever will be - the "closed" nature of the

### **Biography**

seah (Chelsea Heikes) composes sound and video for installation and performance art. Trained in

hydrosphere. With this in mind, and that humans are in fact watery flesh bags, we are *conduits of the hydrosphere - dinosaur piss runs through our veins*.

This concept courses through my recent album/book release, "conduits of the hydrosphere". The five tracks were all made using field recordings of watery spaces (lakes, rivers, archipelagos, puddles) using hydrophones and cameras hanging from my water body it engaged in intra-actions with these outer water bodies, hydrophones have also been placed in my mouth and as far back down my throat as I could handle it, as well as various mostly handmade instruments. Each track has video work that is meant to be projection mapped into a space (for example, ova 1 was mapped into a stairwell at RE:Sound in 2019). Video stills have been culled from the videos to create a 60-page book of images and fragments of writings related to the tracks.

My work evolves at the intersection of the human body, environmental bodies, and technology. I am deeply invested in examining intra-actions amongst these three entities in the scope of Critical Feminist Posthumanism and New Materialisms. My practice begins at the human body, through somatic movement practices (Butoh, Body Weather Laboratory, and Noguchi Taiso) and spirals out from there. These practices open the practitioner to experiencing their human body as "other-than-human". It is through these movement practices that I investigate the terrain, using field recording technologies that I then bring back into the studio. I am less interested in "pure" field recordings. Rather, the final audio-visual compositions reach toward evoking the felt experience of place, porosity, and being a body. These field recordings are then rendered into audio-visual compositions which can be experienced as live performance, immersive installation, or on a flat screen. I draw on the concept of indeterminacy and the fluidity/porous nature of bodies in the creation of this body of work, connecting this to larger issues of listening, sounding, and performance.

Butoh, Body Weather Laboratory, and Noguchi Taiso, the compositions are an expression of somatic experiences housed deep within the sinews of the body. Seah's solo work and collaborative project (post doom romance), have been reviewed by several experimental sound art writers. The art duo dismantles notions of linear time/space through layered audio-visual assemblages culled from inner and outer psychogeographies. Seah has a BFA from California College of the Arts, an MA from European Graduate School and has guest lectured at CCA in San Francisco, Alberta University of the Arts in Calgary (Canada), and University of Wisconsin - Milwaukee. Artistic work and philosophical writing have been presented throughout Europe and North America.











