NowNet
Arts

NOWNET ARTS CONFERENCE 2023
Immersion in Network Arts: Innovations for Artistic and Technical Design
October 30 - November 4, 2023 (Eastern Daylight Time Zone)

NowNet Arts Conference is an annual event for artists, technologists, researchers, educators, and industry professionals advancing topics in contemporary network arts for the ongoing development of the field. The theme for our 6th annual conference "Immersion in Network Arts: Innovations for Artistic and Technological Designs" explores immersion in hybrid and virtual settings, physical and perceptual realms, and histories of immersion in artistic works. Immersive work lives on the hyphen that connects senses. How do we create immersion across geographic distances? What are cultural elements of immersion? What are the artistic qualities of immersive works? How do we design immersive technological environments in network arts? What alternatives to immersion can network arts offer? The NowNet Arts Conference 2023 presents papers, panels, presentations, workshops, and performance demonstrations that feature this topic and generate new innovations for this work forward.

AFFILIATES

Center for Computer Research in Music and Acoustics (CCRMA), Stanford University, California, USA
Institute for Advanced Computational Science (IACS), Stony Brook University, New York, USA
LASALLE College of the Arts, Singapore
The University of Melbourne, Australia
Orpheus Institute, Ghent, Belgium
Zurich University of the Arts, Switzerland

CONFERENCE COMMITTEE

Director: Sarah Weaver, NowNet Arts
Chris Chafe, Stanford University
Margaret Schedel, Stony Brook University

NOWNET ARTS CONTACT

info@nownetarts.org
https://nownetarts.org/nownet-arts-conference-2023

NOWNET ARTS CONFERENCE 2023
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October 30 - November 4, 2023

DAILY SCHEDULE
MONDAY OCTOBER 30

Moderator: Sarah Weaver 5:00PM–8:45PM

5:00PM Concert Demonstration: SHOALZ – Telemidi Immersive
Matt Bray, Western Australian Academy of Performing Arts (WAAPA)

6:00PM Lab Session: All Conference Attendees

7:00PM Concert Demonstration: Trio Janela – Flying Rivers
Viv Corringham, New York
Diane Roblin, Toronto
Cássia Carrascoza Bomfim, University of São Paulo

8:00PM Presentation: Designing a Virtual Reality Laboratory for Immersive Music Research
Ben Loveridge, The University of Melbourne

8:45PM Session Discussion: 5:00PM–8:45PM Presenters and Audience

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TUESDAY OCTOBER 31

11:00AM Lab Session: All Conference Attendees

Moderator: Sarah Weaver 12:00PM-3:00PM

12:00PM Concert Demonstration: Telematic Ensemble LaFlauta
Cássia Carrascoza Bonfim, University of São Paulo
Danilo Rossetti, Federal University of Mato Grosso, Institute of Arts at the State University of Campinas
Students from University of São Paulo

1:00PM Concert Demonstration: MA Ensemble - Arctic Air
Amy Reed, California, Biggi Vinkeloe, Sweden, Ione, New York, Jennifer Wilsey, California, Tom Bickley, California, bob drake, Ohio, Theresa Seguritan Abalos, Pennsylvania, CCRMA Performers, Stanford University

2:00PM Concert Demonstration: Wording Land - Summer to Autumn
Ximena Alarcon, United Kingdom
Gloria Damijan, Vienna
Jane Wang, Boston

3:00PM Session Discussion: 12:00PM-3:00PM Presenters and Audience

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WEDNESDAY NOVEMBER 1

11:00AM Lab Session: All Conference Attendees

Moderator: Margaret Schedel 12:00PM-3:45PM

12:00PM Panel: Pretty Good JackTrip Toolkit (PGJTT)
Mike O'Connor, Wisconsin
Members of NowNet Arts Lab Ensemble

1:00PM Panel: VOLUNTARILY WIRED: The Inaugural Semester of the York College Telematic Ensemble
Tom Zlabinger, Che Bedward, Joemal Rodrigues, Isaiah Smith, York College

2:00PM Paper: Unravelling - immersive listening in synchronicities weaving migration and conflict
Ximena Alarcón, Ulf A. S. Holbrook, United Kingdom

2:45PM Concert Demonstration: Dispersionology #2
Doug Van Nort, York University
Large Ensemble in Various Locations

3:45PM Session Discussion: 12:00PM-3:45PM Presenters and Audience

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THURSDAY NOVEMBER 2

7:00AM Lab Session: All Conference Attendees

Moderator: Sarah Weaver 8:00AM-11:00AM

8:00AM Presentation: Building a multiverse with 16th century technology
Andrew Hallock, Ghent

8:45AM Presentation: soil*food*sound*intra*actions*
HannaH Walter, Zurich University of the Arts

9:30AM Paper: Telemersive metadramaturgies
Patrick Müller, Benjamin Burger, Zurich University of the Arts

10:15AM Paper: Connectivity, presence, and time in telematic music
Cássia Carrascoza Bonfim, University of São Paulo
Danilo Rossetti, Federal University of Mato Grosso, Institute of Arts at the State University of Campinas

11:00AM Session Discussion: 8:00AM-11:00AM Presenters and Audience

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FRIDAY NOVEMBER 3

11:00AM Lab Session: All Conference Attendees

Moderator: Chris Chafe 12:00PM-3:30PM

12:00PM Concert Demonstration: Network performance demoing co-creative tools to foster inclusive and engaging multimodal online musical experiences
Patricia Alessandrini, Sophia Alexandersson, Constantin Basica, Nigel Osborne, Hans Kretz, members of the Stanford New Ensemble (SNE), ParaSonic and Elefantôra, Stanford University

1:00PM Concert Demonstration: Stretched Imaginations
Jonas Braasch, Rensselaer Polytechnic Institute
Large Ensemble in Various Locations

2:00PM Paper: aesthetics and politics of distributed performance
Hans Kretz, Stanford University

2:45PM Paper: Cyber Aurality: Sound, Performance, and Virtual Space on the World Wide Web
Tommy Martinez, Brooklyn College

3:30PM Session Discussion: 12:00PM-3:30PM Presenters and Audience

SATURDAY NOVEMBER 4

11:00AM Lab Session: All Conference Attendees

Moderator: Sarah Weaver 12:00PM-4:00PM

12:00PM Concert Demonstration: In 3 - for network large ensemble
Sarah Weaver, NowNet Arts
Mike O'Connor, Wisconsin
Various performers at Orpheus Institute, Stanford University, and NowNet Arts Lab Ensemble individual locations

1:00PM Concert Demonstration: Sonic Network Arts Performance (SNAP)
Marc Ainger, Ann Stimson, Ohio State University
Scott Deal, Patti Cudd, Harry Chaubey, Various Locations

2:00PM Concert Demonstration: Invitation
Scott L. Miller, St. Cloud State University
Gloria Damijan, Vienna
Jane Rigler, University of Colorado, Colorado Springs
Adam Zahller, Minneapolis

3:00PM Concert Demonstration: Quarantine Sessions Ensemble: California / Georgia / New York (USA), Belgium, Sweden
Constantin Basica, Chris Chafe, Henrik Von Coler, Henrik Frisk, Fernando Lopez-Lezcano, Fred Malouf, Chrysi Nanou, Juan Parra

4:00PM Session Discussion: 12:00PM-4:00PM Presenters and Audience

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FULL SCHEDULE
MONDAY OCTOBER 30

5:00PM Concert Demonstration: SHOALZ - Telemidi Immersive
Matt Bray, Western Australian Academy of Performing Arts (WAAPA)

SHOALZ - Telemidi Immersive ~ is a 30 minute live Telematic Music Performance (TMP), between London (UK), and Perth (Aust). Two musicians located continents apart, co-create and `comprovise' an Electro Dub piece that also generates an immersive, reactive visual feed that can be viewed through a VR headset or an online stream. The ethos of the piece is to demonstrate the capacity to create immersive, paradigm shifting artworks together, despite disparate locations. Performers share MIDI performance data over The Internet to co-create a singular piece of rhythmically syncopated music, complimented with a detailed visual feed available to remote viewers. The aesthetics are aqua, ether, unity and transcendence.

Telemidi is a targeted approach to MIDI network design with an explicit aim to minimise the obstruction of latency within live TMP events across a Wide Area Network (WAN i.e. the Internet). Undertaking PhD research at WAAPA (ECU, Perth, Aust.), the author has developed a live performance environment that also harnesses the MIDI to generate hi resolution reactive visuals that can also feed into VR headsets in real-time. This research seeks to identify the process of cross-cultural cooperation within the emergent TMP paradigm.

Critically, the process of sharing time sensitive music performance information over The Internet exposes data to latencies that disrupt the millisecond timing of human-to-human musical intercourse, therefore attaining successful TMP environments has proven to be overwhelmingly elusive. Telemidi networks exchange only MIDI information to benefit from the relatively miniature data packet sizes and the multifaceted capacity of this digital protocol.

Matt Bray has operated as a professional musician (drummer, singer, guitarist, MIDI performer) since 1996 playing over 3,300 gigs, composing over 170 musical pieces (listed with Australian Performing Rights Association) including a piece performed by the Melbourne Symphony Orchestra and song writing credits on an Australian top 40 album and top 20 single. Using MIDI technologies in live environments since 1998, Matt has developed a range of methods for incorporating sample and synth based performance/ composition in live

performance, leading towards his 2018 Masters research demonstrating how MIDI can be exchanged over the internet to facilitate musicians performing with each other in real-time from any location on the globe. Currently completing PhD at the Western Australian Academy of Performing Arts (WAAPA), Matt is researching further measures to reduce the obstruction of network latency, to increase Telepresence between performers and to harness latency artefacts to deliver ambisonics. Matt is also investigating pathways to present Network Music Performances to audiences within virtual environments.

6:00PM Lab Session: All Conference Attendees

7:00PM Concert Demonstration: Trio Janela – Flying Rivers
Viv Corringham, New York
Diane Roblin, Toronto
Cássia Carrascoza Bomfim, University of São Paulo

Flying Rivers is a collective work by Trio Janela, an ensemble of three women playing live in different countries: Brazil, USA and Canada. Trio Janela seeks to develop communication and musical expressiveness within the particularities of the virtual environment. In this composite space that is distinct from our own sites we aim to create a sense of connection between ourselves and the audience through sound.

This original composition explores the phenomenon of flying or atmospheric rivers, the climate changes created and how this affects our local regions. Flying Rivers are like rivers in the sky, invisible and without clearly defined margins; our performance reflects this through a combination of free improvisation, pre-structured and electronic elements along with video. We are exploring our virtual presence on the screen and developing a choreographic approach to the visuals. Our work suggests rather than explains, inviting the dispersed audience to take an inner journey, in which their memories and associations mingle with our immersive sounds and images.

Viv Corringham: voice, electronics (NYC) vivcorringham.org
Diane Roblin: piano, electronic keyboards (Toronto) dianeroblin.com
Cassia Carrascoza Bomfim: flute (Brazil) pt.wikipedia.org/Cassia Carrascoza

Viv Corringham is a vocalist, composer and sound artist. She holds an MA Sonic Art from Middlesex University, London, and a Deep Listening teaching certificate. She explores people's sense of place and the link with memory through concerts, soundwalks, installations and listening workshops. Awards

include two McKnight Composer Fellowships through American Composers Forum. Work has been presented in 26 countries in venues including Hong Kong Arts Centre, Fonoteca Nacional de Mexico, Issue Project Room New York, Onassis Centre Athens, Serralves Museum Portugal. Ohrenhoch Sound Gallery Berlin, Taipei University Taiwan, Shantou University China, Institute of Contemporary Art London and universities in Bangalore, Calcutta and Delhi. Articles about her work have appeared in many publications, including In the Field (UK), Leonardo Music Journal (US), Going Out (Belgium), Walking from Scores (France), Art of Immersive Soundscapes (Canada), Organised Sound (UK), Musicworks (Canada), Catskill Made (US), Playing With Words (UK) and For Those Who Have Ears (Ireland).

8:00PM Presentation: Designing a Virtual Reality Laboratory for Immersive Music Research
Ben Loveridge, The University of Melbourne

Virtual reality (VR) technology offers multifaceted research opportunities in immersive music research through a controlled environment for experiments. Recent improvements have included biometric capture capabilities such as the tracking of facial expressions, eye movements and heart rate within readily available headsets. However, the technical considerations for conducting music psychology and performance science experiments in immersive VR are still largely unexplored. In this presentation, the configuration of a virtual reality lab for music psychology research is discussed within a university context, outlining the procedural, technical, and ethical considerations necessary for running experiments using VR technology.

Ben Loveridge is the Immersive Media Coordinator (VR/AR) at the University of Melbourne, assisting with the integration of spatial technology in teaching and research across the University. He obtained his Bachelor of Music at the University of Melbourne with studies in guitar and composition at the Conservatorium of Music. Ben has worked extensively across film and television post-production, audio engineering, as well as live music photography. He holds a Master of Music (Research) from the University of Melbourne which investigated singing in virtual reality and videoconferencing, and is currently a PhD candidate in the Faculty of Fine Arts and Music, exploring the intersection of music performance and virtual reality.

8:45PM Session Discussion: 5:00PM-8:45PM Presenters and Audience

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11:00AM Lab Session: All Conference Attendees

12:00PM Concert Demonstration: Telematic Ensemble LaFlauta
Cássia Carrascoza Bonfim, University of São Paulo
Danilo Rossetti, Federal University of Mato Grosso, Institute of Arts at the State University of Campinas
Students from University of São Paulo

One aspect of this research is focused in the implications of our own presence in the virtual environment. In the coexistence in virtual space we constantly see our own selves mirrored image on the monitor. Therefore, our perception is encoded in a way that, at the same time we are both our physical presence and spectators of ourselves. For our project, we aim to establish a discourse on expanded narratives that seek to integrate the audiovisual electronic processing, envisioning a shared virtual space in an immersive audiovisual experience.

As the acoustic characteristics of the telematic environment offer specific sonic responses we understand that telematic interaction is an excellent pedagogical tool for practicing electronic music and moreover requires active listening for musical connection among participants.

The Telematic Ensemble La Flauta was created in March 2021 with undergraduate flute students to integrate the Connecting Creative Communities project: "Our Music, Our Stories," created, conceptualized, and realized by Paulo C. Chagas. The project brought together students from the Concert Band at the University of California, Riverside, coordinated by Professor Lauren Wasynczuk, and the LaFlauta Ensemble. The group made its debut at the "Que Viva México!" conference on May 16, 2021, at the University of California, Riverside.

The Telematic Ensemble LaFlauta is formed by students from the Department of Music at FFCLRP, University of São Paulo, and coordinated by Professor Dr. Cássia Carrascoza.

Concert Demonstration:
Telematic Ensemble LaFlauta
1. Modules 2 – My words (2023), by Cássia Carrascoza. Piece also based on the concept of non-synchronous canonical polyphony, composed of short alternating

modules repeated by the instruments, facilitating the exploration of listening and affective connections in the telematic space. Elements of improvisation, noise, electronic flute sounds, and processed voice with real time granular synthesis and transpositions are part of the sonic texture that composes the piece.

2. Texture Studies (2023), by Danilo Rossetti. This piece explores the idea of presence in telematic environment through the construction of a virtual immersive space, combining acoustic instruments, live electronics, and video processing in real time. From this multimodal experience, we inquire about how the perception of time is constituted in this environment, and how sound and images affect this phenomenon.

3. Virtual Studies (2020) by Paulo C. Chagas. Five studies for flute or flute ensemble, electronics, and video. Development of the concept of a non-synchronous canonical polyphony, exploring the harmonic and timbral potential of melodies, the alternation of sounds and silences, and the internet latency.

Acknowledgments
We appreciate the support given to this research by The São Paulo Research Foundation, FAPESP.

Telematic Ensemble LaFLauta
Cássia Carrascoza, flute, electronics and vídeo
Danilo Rossetti, live electronics and video

Cássia Carrascoza, University of São Paulo
Brazilian flutist, educator and researcher working internationally in the classical scene and network arts. She is a professor in the Music Department at University of São Paulo (USP), where she holds Ensemble Telemático LaFlauta, with students and guests members. Currently she is a visiting scholar at the University of California, Riverside, doing research in telematic performance under the supervision of Prof. Paulo C. Chagas. Awards include APCA Contemporary Music Award (São Paulo Association of Arts Critics) in 2010 and the 8th Bravo Award in 2012. She was principal flutist of the Symphonic Orchestra of the Municipal of São Paulo for 20 years. She performed in countries such as Hungary, Holland, France, Portugal, Belgium, the United States and Argentina. Cassia's works involve the promotion of contemporary Brazilian music and she has had several works dedicated to her, highlighting the set of works by Paulo C. Chagas for immersive audiovisual for flute, electronics and video. Currently, she develops research in collaborative composition, telematic performance and improvisation with electronics and has been a member of NowNet

Arts Hub Ensemble, led by Sarah Weaver. She has been invited to do research and perform at international institutions such as IRCAM, University of California - Riverside, and Pontificia Universidad Católica (Chile). In 2022, she got the JackTrip Foundation Equipment Grant. She was recently awarded a prestigious grant by The São Paulo Research Foundation, FAPESP for a research project on the theory and practice on telematic music.

Danilo Rossetti, Federal University of Mato Grosso, Institute of Arts at the State University of Campinas
Composer and researcher with focus in the use of technology and interdisciplinary research in creative processes and musical analyses performances, Danilo Rossetti is author of musical works for different formations (solo or ensembles), acousmatic, live electronics and multi-modal (audiovisual installations, music and dance, networked and telematic music), and author and coauthor of several articles concerning creative processes in music and musical analyses. He is Assistant Professor at the Department of Arts of the Federal University of Mato Grosso, and collaborator professor at the Graduate Music Studies Program of the Institute of Arts at the State University of Campinas. He earned his Ph.D in Music Composition at UNICAMP, with a research stage at the Centre de Recherche Informatique et Création Musicale (CICM) of Paris 8 University, and he completed a postdoctoral research at NICS-UNICAMP, funded by FAPESP. His compositions have been played in many international events and festivals.

1:00PM Concert Demonstration: MA Ensemble - Arctic Air
Amy Reed, California, Biggi Vinkeloe, Sweden, Ione, New York, Jennifer Wilsey, California, Tom Bickley, California, bob drake, Ohio, Theresa Seguritan Abalos, Pennsylvania, CCRMA Performers, Stanford University

A hybrid telematic performance of Pauline Oliveros' Arctic Air by MA Ensemble. MA Ensemble is a rotating international ensemble of improvisors from several continents with diverse backgrounds and practices organized by Amy Reed.

2:00PM Concert Demonstration: Wording Land - Summer to Autumn
Ximena Alarcon, United Kingdom, Gloria Damijan, Vienna, Jane Wang, Boston

Ximena Alarcón, Gloria Damijan and Jane Wang perform an adapted version of the listening ritual in Sonic Migrations Wording Land composed by Ximena Alarcón [e-journal 2, performingborders, 2022], immersing ourselves as voices and resonators of each other, in different times and spaces, while connecting with

our childhood memories of curiosity about nature. These word the land as we share a summer-to-autumn process of ritual and connection. We share our native languages, the present physical land where we connect from, and shape the virtual space that connects us, as a multidimensional listening space for immersion.

We ask how we experience our bodies and spaces (physical/virtual) when we are connected, and how this process informs and expands our shared time/space. We experiment with the sensorial and mediated elements of immersion that take us into the ritual across distant times and locations. Our piece is based on an outdoor performance of the ritual in summer 2023 among the three of us, using the INTIMAL App from our individual locations in Bath (UK), Boston (USA) and Vienna (Austria).

The sonic and visual documentation of this ritual is the material for the video-score and the sound files that will guide our live performance, transmitting our experience created out of our individual and shared memories as well as our individual and shared present moment. The power of imagination is what enables us and our audience to merge our individual perception into the bigger picture of our imaginary common room/common landscape.

Links to previous concert presentations and and papers:
Video scores:
P/REPAiRATION by Gloria Damijan - Mike O'Connor
https://youtu.be/PQkLs7OjTWk

ConstructionDeconstruction A concert demonstration using Raspberry Pis NowNet Arts Conference 2021
https://youtu.be/pjpMlgtOV6I

Ritual No 2 Wording Land in performingborders e-journal:
https://performingborders.live/ejournal/three-listening-rituals-in-sonic-migrations/

Gloria Damijan - Extended Toy Piano(s), Berimbau, Percussion, Objects, and Visual Art
Gloria studied piano and music pedagogy at Music University Vienna with a focus on contemporary music and free improvisation. She performs across Europe both independently and as a member of the Viennese Improvisers-Network snim, and in telematic and network-based events with Dilate Ensemble and NowNetArts Hub Ensemble. www.gloriadamijan.com

Jane Wang is a composer/multi-instrumentalist, instrument builder and multimedia artist. She has composed scores for dance and theater primarily with each of her long-time collaborators, performance artist Hanne Tierney and choreographer Nathan Andary. She is a member of Sarah Weaver's NowNet Arts Hub, is one of the regular artists in the annual Maudslay State Park Outdoor Sculpture Group Exhibition and has had her pieces included in the first three issues of the fluxus influenced WowNow! https://en.wikipedia.org/wiki/Jane_Wang

Ximena Alarcón is a sound artist-researcher interested in listening and sounding our sonic migrations: the resonances left in-between our geographical migrations. She is a Deep Listening® certified tutor, with a PhD in Music Technology and Innovation.

Throughout her career, she has created telematic sonic improvisatory performances, and interfaces for relational listening, such as the INTIMAL App, exploring sense of place and telepresence. Ximena composes hybrid listening rituals (online and offline) with musicians and non-trained musicians, and improvises with spoken word and voice. She has engaged in many artistic collaborations, including her participation in the NowNet Arts Hub, and the Raspberry Pi Ensemble. https://www.ximenaalarcon.net

3:00PM Session Discussion: 12:00PM–3:00PM Presenters and Audience

WEDNESDAY NOVEMBER 1

11:00AM Lab Session: All Conference Attendees

12:00PM Panel: Pretty Good JackTrip Toolkit (PGJTT)
Mike O'Connor, Wisconsin
Members of NowNet Arts Lab Ensemble

Pretty Good JackTrip Toolkit (PGJTT) <https://www.pgjtt.com/> contains open source software for network arts audiovisual ensemble practice, performance, and recording. The toolkit is built on JackTrip, VDO.Ninja, Linode servers, Ardour, and more.

I developed PGJTT in response to Covid-era virtual ensemble challenges and continue to build this work. PGJTT has been tested and applied to the NowNet

Arts Hub contemporary audiovisual network arts large ensemble in addition to a growing number of virtual ensembles.

This session is structured as a series of short video case studies that introduce six puzzlers with PGJTT solutions, followed by a panel discussion with the director and members of the Hub on PGJTT developments and applications.

The puzzlers are:
1) It's hard to reliably host, and impossible to mix, a large ensemble in JackTrip (solution: the Pretty Good Jacktrip Toolkit)

2) It's hard to bring people into the mixer and extra hard if they drop and need to reconnect (solution: the Connect_Players BASH script)

3) It's hard for one person to cue and mix video and audio for various scenes/cues/FX during a performance (solution: Gloria's Cues PureData patch)

4) Zoom video is... Zoom video. How can we get beyond that? (solution: VDO.ninja)

5) Hybrid performances and complex compositions need reliable bi-directional multi channel audio (solution: Multi Channel)

6) Performers need custom monitor mixes and are used to them in recording studios and peer-to-peer apps like Sonobus and Nettie (solution: Custom Monitoring)

Mike O'Connor is a retired entrepreneur who divides his time between native habitat restoration at www.PrairieHaven.com and helping musicians rehearse and perform live over the internet.

1:00PM Panel: VOLUNTARILY WIRED: The Inaugural Semester of the York College Telematic Ensemble
Tom Zlabinger, Che Bedward, Joemal Rodrigues, Isaiah Smith, York College

During the pandemic, the York College Jazz Band held rehearsals and gave performances online for three semesters. Though students were eager to return to in-person music making in the fall of 2022, the experience over the previous year and a half showed the potential of performing telematically. After speaking with students, there was still a desire to continue to perform remotely. And so the York College Telematic Ensemble was born!

Important to note, performing remotely now meant voluntarily "wiring up," as opposed to being a substitute for in-person performance. In the spring of 2023, three students (Che Bedward, Joemal Rodrigues, and Isaiah Smith) met once a week and worked on music intended to be performed online. The panel will consist of a discussion with the students about their experience, focusing on the benefits and challenges performing telematically.

Dr. Tom Zlabinger is an Associate Professor of Music at York College, where he teaches popular music performance and directs the York College Band. Dr. Zlabinger holds a B.A. in music from Grinnell College and an M.A. in jazz performance from Queens College. He completed his Ph.D. in ethnomusicology at the CUNY Graduate Center and his dissertation was entitled FREE FROM JAZZ: The Jazz and Improvised Music Scene in Vienna after Ossiach (1971-2011). Dr. Zlabinger has most recently written about music in and around media franchises, such as The Big Lebowski, Peanuts, Neil Gaiman's Sandman, The Simpsons, Star Trek: The Next Generation, and Star Wars. Additionally, his scholarly interests include the pedagogy of improvisation, decolonization, telematic performance, and the relationships between blues, jazz, and psychedelia.

2:00PM Paper: Unravelling - immersive listening in synchronicities weaving migration and conflict
Ximena Alarcón, Ulf A. S. Holbrook, United Kingdom

Unravelling is a sound installation based on recordings of nine different Colombian migrant women expressing their own migratory journeys in Spanish and English, as well as responding to fragments of an oral archive with testimonies collected by the organisation Diaspora Women in 2018. It emerged from Ximena Alacón's INTIMAL project (2017-2019), and is a collaboration with the Oslo-based composer and spatial audio researcher (specialising in ambisonics and wave field synthesis) Ulf A. S. Holbrook. The installation is currently being developed thanks to a Sound Artist Residency awarded by the Immersive Audio Network in Bath, UK, and is planned to tour in venues across the world.

Derived from a Deep Listening immersion weekend in Norway (2018), and envisioning telematic work with the INTIMAL system, the migratory journeys weaved fragments of women's embodied memory of migration. The improvisations were performed in trios, according to the physical locations where they live: Oslo, Barcelona and London, for an intimate understanding of the experience in their native and hostlands. Each woman improvised her journey with body movement and voice, while the other two acted as resonators. Afterwards they heard 16 fragments of testimonies of the oral archive, synchronously via

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earbuds, with a space of 40" silence in between to reflect and respond. They were facing back to back, as imagining a telematic situation. Each group lived the same process, which was recorded using close mic for their voice, floor and ambisonic microphones.

Unravelling is a reflection on their multilayered responses and synchronicities that weave a fragmented history of migration and conflict. While the original Spanish version is projected on loudspeakers, the English version, recorded one year after, by each individual woman, is heard simultaneously via headphones, as a counterpoint that ranges between commentary and literal translation for anglophone audiences. We are bringing these voices to exist together in a single space, and rather than being discrete sources bound to one specific speaker and location in space, the voices are part of the greater "field" of the installation. The voices are encoded in high-order ambisonics, and present the individual voices as parts of a soundfield existing together. The aim is to envelop the audience, where they are surrounded by the voices.

In this paper, we will reflect on our composition process and the layers of immersion and emotion that unveil from our distinct listening perspectives: one that is deeply immersed in the collective memory triggered by the material, and one that listens from a different culture and language. We will discuss how their emotional dynamics of voices with detailed breathing, and the steps, create a territory connecting women's memories across different generations within the Colombian conflict, and explore how Unravelling helps audiences to connect to such interstitial territory, that extrapolates to contemporary wide perspectives on conflict and migration. Finally, we will reflect on the audio technologies used: loudspeakers and headphone listening, and how these open hybrid possibilities to experience emotional telepresence.

Dr. Ximena Alarcón is a sound artist-researcher, Deep Listening® certified tutor, specializing in immersive sound and embodied telematic experiences. Her work explores sonic migrations: the resonances left in-between our geographical migrations. Ximena has a PhD in Music, technology and Innovation, and creates online environments, telematic sonic performances, and Interfaces for Relational Listening. Ximena composes hybrid listening rituals (online and offline) with musicians and non-trained musicians and improvises with spoken word and voice. She is interested in voice and immersive audio, as the possibilities of expanding vocal presence for the emergence of aural territories of memory and emotion. http://ximenaalarcon.net

Dr. Ulf A. S. Holbrook: Composer, sound designer, sound artist, immersive technologist, researcher in immersive and spatial audio. Ulf works with sound in a variety of media, including composition, improvisation, electronics, sculpture, installation, text and research. His primary interest is in the representation of space and place through sound, using spatial audio, acoustics, sonification, field recording and custom software. He holds a PhD in music technology from the University of Oslo, which examines the relationships between sound objects and spatial audio. https://linktr.ee/differencetones

2:45PM Concert Demonstration: Dispersionology #2
Doug Van Nort, York University
Large Ensemble in Various Locations

In the world of physics, dispersion describes a phenomenon in which the rate of propagation of a wave in a medium, its phase velocity, is dependent on its frequency. This can be seen in light, sound, gravity waves, etc. It's a property of telecommunications signals, including the pulses of light in optical fiber cables, describing how the signal broadens and spreads out as it moves across the channel. Dispersion therefore is inherent in the medium that more-and-more binds us these days, in the movements of light pulses that transports our attention, and our listening, around the globe. A beautiful consequence of dispersion is a change in the angle of refraction of different frequencies, leading to a prismatic opening up of a full colour spectrum from incoming light. This ability to broaden out as signals propagate through the network reflects a much wider expansion of distributed listening and sounding that is made possible in the context of telematic musicking. It occurred to me recently that I've engaged this medium now for 20 years, with an ear towards exploring the myriad ways that the shared real/virtual and nowhere/everywhere site of performance can act as both a point of convergence towards a singular locus of performative attention -- yet also a dispersive prism, reflecting individual voices and the preservation of creative agencies of every performer. I call this current exploration of this phenomenon, at this current milestone moment, "Dispersionology"….and I invite you all to explore this and other related tales with me!

On May 10th over 40 performers from 3 continents performed the first version of Dispersionology - a piece for text/graphic score, algorithmic randomness, and gesture-based real-time composition, created for the telematic medium.

For NowNet Arts 2023 I will present a second version of this same piece, involving many of the same performers. Following the performance I would like

to open up discussion with the performers and audience, focused on the immediate experience of the piece, its context, compositional metaphors related to networks, and the larger motivations for the project.

Doug Van Nort is an artist, composer, improviser and scholar. His creative and scholarly work sits at the intersection of electroacoustic, experimental and computer music, improvised and interactive performance, and the sonic arts more broadly. Spanning from professional music to public installation and workshop contexts, he creates compositions and frameworks for improvisation that integrate machine agents, immersive environments, interactive systems and experiences of telepresence as boundary conditions to explore the myriad ways that performers negotiate emergent, collective meaning outside of spoken language. Van Nort is currently Canada Research Chair in Digital Performance and an Associate Professor at York University, cross-appointed between the departments of Computational Arts and Music. He is the founder and director of the DisPerSion (DIStributed PERformance and Sensorial immerSION) Lab, dedicated to explorations in distributed agency, improvisation and technologically-mediated performance.

3:45PM Session Discussion: 12:00PM-3:45PM Presenters and Audience

THURSDAY NOVEMBER 2

7:00AM Lab Session: All Conference Attendees

8:00AM Presentation: Building a multiverse with 16th century technology
Andrew Hallock, Ghent

Imagine you're laying in a sensory deprivation chamber. The sights and sounds of the outside world have been replaced by an uneasy void… you float, without access even to your own weight, and almost paradoxically another world begins to open in front of your eyes. There are many facets to immersion and many forms it can take. Popular imaginings include things like VR goggles, IMAX cinema, a rock concert, multimedia performance art etc… but clearly there's more to immersion than simply adding bells and whistles.

In this presentation we attempt to probe at the fundamental aspects of immersion, by looking backwards in time. European liturgical music in the 16th century was a sophisticated art form, itself drawing on a certain astronomical,

mathematical, magical and philosophical paradigm, and on a legacy stretching back (at least in narrative) to the ancient Greeks. Progress, technology and innovation meant something other than they do today. Though many aspects of this culture don't map well onto our current situation, there were still tools and there were goals, and of course there was the human mind, navigating external and internal realities.

Reaching across disciplines we (immersion-oriented forensic detectives) attempt to paint a more experiential picture of the 16th century liturgical soundscape: what kinds of methods were used, what kinds of priorities shaped the encounter and what were the expectations or larger goals? We attempt to give the compositional techniques of imitation, canon and ornamentation a cognitive, philosophical and phenomenological grounding, and to embed them within larger structures of immersion, in the ritual celebration of the mass and its transformational agenda, and speculate about how those structures tap into more fundamental, extra-cultural ideas.

Though it can take many forms, we start with the immersive potential of XYZ space itself – the suggestion of dimensionality, the extrapolation of additional planes and the population and saturation of those planes with material. We draw some speculative connections with inbuilt cognitive mechanisms, metaphysical philosophy, psychedelic geometry, compositional-liturgical techniques and with trans-humanist discourse. We also touch on the idea of ritualised immersion and how it relates to our assumptions about engagement and participation. We propose that both fields (historically-informed performance practice and immersive network arts) navigate a similar terrain, striking a careful balance between craft, art, research, technology, escapism, fantasy, connection and non-belonging, and we address the potential overlap between experience- commodification and early-music revivalism.

In case it needs saying, we look to old forms of immersion not to dismiss electronically-based forms, but to probe into every facet of the matter, to help us interact with histories of immersion in a more complete and effective way, and by reflecting inform ourselves about future possibilities.

Andrew Hallock holds degrees in composition from the University of Texas at Austin and in voice from the Royal Conservatory in The Hague, Netherlands. As a specialist in the style and techniques involved in 16th-century repertoire, he has spent the past decade traveling around Europe and the US in a variety of capacities: countertenor soloist, ensemble singer, instrument maker,

cornettist, educator, and independent researcher.

Soloist & Ensemble singer
In 2011 Andrew made his solo debut in the Amsterdam Concertgebouw with Bach's
Saint Matthew Passion with the Bach Orchestra of the Netherlands. As an
oratorio soloist he is regularly engaged for the passions of J.S. Bach, and the
cantatas throughout the year. He has performed in the Festival
d'Aix-en-Provence, the Salzburger Festspiele, Tage Alter Musik Regensburg, the
Festival d'Ambronay, Festival Oudemuziek Utrecht, Laus Polyphoniae Antwerp,
Resonanzen Vienna, Music Before 1800 New York among others. He has performed
with ensembles il Gardellino (BE), English Voices (UK), Ensemble Diskantores
(NL), Bach Choir and Orchestra of the Netherlands (NL), Musiche Varie (DE), Vox
Luminis (BE), Musica Fiata (DE), il Cuore Barocco (SK), Club Médieval (BE),
Sollazzo Ensemble (CH), graindelavoix (BE) and Cappella Pratensis (NL). Since
2010, Andrew has been a regular member of the Dutch vocal polyphony ensemble
Cappella Pratensis, appearing almost 200 times on stage with them, and has made
numerous concert tours in the US, France, Italy, Germany, Portugal and, of
course, Belgium and the Netherlands. They are in the middle of a 5-year project
to record music from the 16th-century choirbooks held in the collection of the
Illustrious Brotherhood of our Lady in Den Bosch. Their latest CD "Apostola
Apostolorum" won the 2022 European Early Music Network heritage project of the
year, and appears on the list of "best choral recordings of 2022" at Gramophone
magazine. Since 2019 he has also been a regular member of the Belgian
art-ensemble graindelavoix. Their latest CD "Josquin the Undead" won the German
recording prize Jahrespreis Deutscher Schallplattenkritik 2022. Andrew sang on
the 2018 CD "Firenze 1350" with the ensemble Sollazzo, which won the French
award Diapason d'or de l'année. Also with Sollazzo Andrew is involved in a
multi-year project to record the recently discovered late 15th-century Leuven
songbook, including 12 modern premiers.

Cornetto player and Maker
In addition to his singing career, Andrew is also involved in the world of the
cornetto; he is active as a player, maker and researcher. In 2010 he and fellow
cornettist Nicholas Emmerson founded the brass ensemble Copper & Zink, and have
since then performed regularly in the Netherlands under that name. In 2015
together with fellow maker Sam Goble, he developed a course aptly titled "make
your own cornetto" where participants craft a treble cornetto from scratch in 4
days according to historical measurements. This course has been repeated on a
more or less yearly basis, in various locations including Cambridge (UK), Evora
(PT), Schwerin (DE). He studied cornett with Marleen Leicher (BE) and
instrument-making with Paul Beekhuizen (NL). As a maker, his workshop has been

active since around 2011, and presented instruments at many of the exhibitions and markets attached to the major Early Music Festivals (Boston, Berkley, Utrecht, Regensburg, Stockstadt, Bruges, Paris et al). He has done a wide variety of work, including mouthpieces, historical copies, new models, misc. repairs, custom keywork, stands & cases, tune-ups, re-coverings… and now focuses primarily on the under-represented tenor cornett, or Lysard as it's sometimes known. As a maker and player Andrew has introduced the cornetto to hundreds of musicians at all levels.

Educator and independent researcher
Every August during the festival Laus Polyphoniae Andrew teaches in a week-long specialised course about the notation of Renaissance Polyphony. This culminates in a final performance conducted by himself and his two colleague tutors, directly from the large calligraphic choirbook like we see in paintings and iconography. As a member of the ensemble Cappella Pratensis he has also participated in numerous smaller workshops and masterclasses given while on tour, to local vocal groups, university choirs & vocal departments. He is helping to build an online resource (also with Cappella Pratensis) for learning to sing like a Renaissance chorister. This project involves the development of a practical curriculum drawn directly from the original pedagogical sources around the turn of the 16th century. It also results in the creation of interactive materials for practicing specific techniques, in the form of videos, games, worksheets, and virtual online tools. As a researcher, Andrew draws on a wide base of interests to inform every facet of his own practice. Of recurring importance are topics related to: historically-informed instrument making, source-based music pedagogy, techniques of 16th-century improvisation, forensic archeology, vocal acoustics and the history & philosophy of science. Committed to lifelong learning, he's a true believer in the value of the "rabbit hole", and can often be spotted lurking down there. In his spare time, Andrew can be found hanging out in his kitchen, improvising midnight snacks and other scrumptious delights.

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8:45AM Presentation: soil*food*sound*intra*actions*
HannaH Walter, Zurich University of the Arts

soil*food*sound*intra*actions*
is an artistic-scientific-social encounter revolving around the compost-human world-making practices of composting, composing, cooking, (tele)communicating, eating, and listening.

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soil*food*sound*intra*actions*
is a utopian, proliferating, blossoming, decaying, decomposing, transitioning,
(re)sounding and geographically distributed laboratory of transformation in
real soil-food webs and digital webs of telecommunication.

soil*food*sound*intra*actions*
entangles itself in processes of networking and SF (speculative fabulation,
speculative feminism, science-fiction, science-fact, science-fantasy and string
figures) among human actors from three different practices (sound art, culinary
art and compost (regenerative farming and gardening)) and the contexts,
perspectives, resonances, and relationships they sense, live, and create among
themselves and with the more-than-human.

soil*food*sound*intra*actions*
is a Telematic Performance Format in entangled times of
past/present/yet-to-come.

soil*food*sound*intra*actions*
is the home of telematic transdisciplinarities that are at risk of
becoming-with

soil*food*sound*intra*actions*
is (im)possible multispecies storytelling and multispecies worlding

The presentation narrates the interrelationships of human and more-than-human,
real and imaginary, hybrid human-machine creatures and naturecultures
resonating in and around the com-post-human geo-gastro-culture within a
virtual, telematically connected ecosystem, (re)growing, moving with organic
bodies, reproducing and digitally duplicating, (intra)weaving, (miss)speaking.

In search of fertile human-soil intra-actions and participatory (r)urban
ecologies of living and non-living things in spaces and glocal networks of
gardening, cooking, and cultural creation, the presented project cultivates,
nurtures, and shares compost-culinary-arts telematically in practice, theory
and vibration.

I'm a violinist becoming a cyborg, a vyborg. I create formats and fictions in
which humans and more-than humans communicate and perform over distance with
each other. Sympoietically we explore means of traveling as soundbytes and
pixels through telematic space-times. With my companion-instrument, the violin,

I studied in Düsseldorf, Berlin, Frankfurt and Paris. In Switzerland I continued the (trans)formation with my body extension in the Master Program of Contemporary Music (Basel Music Academy) and in the Master in Transdisciplinarity (Zurich University of the Arts). In my becoming with my instrument and sounding environment I was encouraged through scholarships from the Studienstiftung des Deutschen Volkes, the Yehudi Menuhin Live Music Now Association, the Stendal Jütting Foundation, the Oscar and Vera Ritter Foundation, and the Swiss Federal Excellence Scholarship for Foreign Artists, among others. In 2017 we won the second prize at the Concours Nicati contemporary music interpretation competition. We perform with WeSpoke, Ensemble Vortex, the soloist ensemble Kaleidoskop, Ensemble Musikfabrik or Ensemble Modern, among others, at major festivals in Europe. HannaH is a founding member and artistic director of the collective Mycelium, they are member of Ensemble of Nomads and Ensemble Interface. From 2019 - 2021 HannaH is working as a teaching assistant in the Master in Transdisciplinarity (MTR) at ZHdK. Since February 2021 we have a PhD position in the SNF funded project "Spatial Dis/Continuities in Telematic Performances" at ZHdK. We are part of Florian Dombois' PhD group in the Transdisciplinarity research focus and at the Linz University of the Arts. At the MTR HannaH is a research assistant in teaching.

9:30AM Paper: Telemersive metadramaturgies
Patrick Müller, Benjamin Burger, Zurich University of the Arts

In telematic performances, both the actors ¬ performers and audience ¬ and the mediating media ¬- cameras, microphones, screens, loudspeaker arrays - are usually used statically; the perspective of sight and hearing thus appears fixed and can often be compared to a central perspective. This facilitates the control and precise handling of sonic, linguistic and visual information that migrates between the connected spaces in the telematic network. At the same time, however, such procedures reduce spatial atmospheres or the experience of embodiment and thus the potential for immersion in both local and remote space. The interplay of dislocated spaces and their unique atmospheres (no matter if authentic or staged) in temporal synchronisation is, however, precisely a feature that distinguishes telematics from other media forms and makes it unique.

In our approach to telemersive performances, we therefore combine approaches of 'spatial augmented reality' (SAR) with the idea of 'spatial metacomposition', which are applied to the telematic context using advanced technologies.

Contrary to 'virtual reality' (VR), SAR does not replace the real-world environment with a simulated one, but alters one's ongoing perception of this environment. Contrary to 'augmented reality' (AR), SAR detaches the display technology (as head mounted displays) from the user and integrates it into the environment (Bimber and Raskar 2005). The (remote) sensing technologies available today, on the other hand, make it possible to set up interactive audiovisual spaces. The related term 'spatial metacomposition' describes a form of spatial design in which space is used to arrange audiovisual elements rather than being treated merely as an environment; we extend this term towards 'telemersive metadramaturgies': "Succinctly put, [telemersive metadramaturgies] generate [audiovisual] output as a function of a performers position in space." (Jarvis and Verhagen 2020)

The paper provides an insight into the development of technological setups and related narrative procedures in which these considerations are applied in a telemersive and interactive 1 : 1 encounter between an audience member and a performer (fed from a remote space). Two specific use cases are described, that – on a content level – overwrite science fiction as climate fiction narratives (Lem's Solaris and Strugatzki's Roadside Picnic). On the visual level, remote sensing technologies such as photogrammetry, 360° and volumetric cameras are used, partly mobile, which are streamed into the audience space via a tablet with which the audience guest can navigate freely through the remote space, using the tablet as a mobile window or virtual camera; it can be compared to a first-person perspective in a video game. Motion tracking systems allow for accurate positioning of both performer and audience member, as well as camera and tablet, enabling multi-perspective communication. The tracking data is also used to make the remote space acoustically tangible: 3D as well as conventional microphones installed there are streamed into the audience space via open headphones as well as via a loudspeaker array. The superimposition of binaural as well as ambisonic rendering makes it possible to acoustically experience spatial movements in mutual dependence, while at the same time enabling sonic zoom effects that oscillate between distance and intimacy. In the paper, a number of technological innovations in the ongoing research are presented that enable such telemersive metadramaturgies.

Patrick Müller and Benjamin Burger are part of the research group Telematic Performance Format at the Institute for Computer Music and Sound Technology, Zurich University of the Arts.

10:15AM Paper: Connectivity, presence, and time in telematic music
Cássia Carrascoza Bonfim, University of São Paulo
Danilo Rossetti, Federal University of Mato Grosso, Institute of Arts at the State University of Campinas

Several research studies on telematic music were published for decades, whether from a technological perspective, its practice, or its philosophical implications (FLÜSSER, 2008; CHAGAS, 2008, 2014; MILLS, 2019; OLIVEROS et al., 2009). The involvement of artist-researchers in this field has been increasing in the current scenario, and new technological and creative solutions are constantly being proposed.

With the ongoing development of technologies designed for telematic music, sound tools are continuously being developed seeking to integrate different software for remote communication, such as JackTrip, OBS, VDO.ninja, PGJTT by Mike O'Connor. We assume that chamber music ensemble communicates beyond sound interaction through parameters of corporeality, such as physical gestures, breathing, heartbeats, eye contact, among others (CHAGAS, 2008; CARRASCOZA and ROSSETTI, 2021).

One aspect of this research is focused in the implications of our own presence in the virtual environment. In the coexistence in virtual space we constantly see our own selves mirrored image on the monitor. Therefore, our perception is encoded in a way that, at the same time we are both our physical presence and spectators of ourselves. For our project, we aim to establish a discourse on expanded narratives that seek to integrate the audiovisual electronic processing, envisioning a shared virtual space in an immersive audiovisual experience.

As the acoustic characteristics of the telematic environment offer specific sonic responses we understand that telematic interaction is an excellent pedagogical tool for practicing electronic music and moreover requires active listening for musical connection among participants. The Telematic Ensemble LaFlauta is formed by students from the Department of Music at FFCLRP, University of São Paulo, and coordinated by Professor Dr. Cássia Carrascoza.

We understand that the telematic environment facilitates mixed music practices and makes continuous exploration of electronic music accessible. Our methodology is to experience through our practice, how the telematic paradigm involves not only the technology of interaction among human beings but also the connections between humans, intelligent systems and affect.

Concert Demonstration:
1.   Virtual Studies (2020) by Paulo C. Chagas. Five studies for flute or flute ensemble, electronics, and video. Development of the concept of a non-synchronous canonical polyphony, exploring the harmonic and timbral potential of melodies, the alternation of sounds and silences, and the internet latency.
2.   Modules 2 - My words (2023), by Cássia Carrascoza. Piece also based on the concept of non-synchronous canonical polyphony, composed of short alternating modules repeated by the instruments, facilitating the exploration of listening and affective connections in the telematic space. Elements of improvisation, noise, electronic flute sounds, and processed voice with real time granular synthesis and transpositions are part of the sonic texture that composes the piece.
3.   Texture Studies (2023), by Danilo Rossetti. This piece explores the idea of presence in telematic environment through the construction of a virtual immersive space, combining acoustic instruments, live electronics, and video processing in real time. From this multimodal experience, we inquire about how the perception of time is constituted in this environment, and how sound and images affect this phenomenon.

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Cássia Carrascoza is a Brazilian flutist, educator and researcher working internationally in the classical scene and network arts. She is a professor in the Music Department at University of São Paulo (USP), where she holds Ensemble Telemático LaFlauta, with students and guests members. Currently she is a visiting scholar at the University of California, Riverside, doing research in telematic performance under the supervision of Prof. Paulo C. Chagas. Awards include APCA Contemporary Music Award (São Paulo Association of Arts Critics) in 2010 and the 8th Bravo Award in 2012. She was principal flutist of the Symphonic Orchestra of the Municipal of São Paulo for 20 years. She performed in countries such as Hungary, Holland, France, Portugal, Belgium, the United States and Argentina. Cassia's works involve the promotion of contemporary Brazilian music and she has had several works dedicated to her, highlighting the set of works by Paulo C. Chagas for immersive audiovisual for flute, electronics and video. Currently, she develops research in collaborative composition, telematic performance and improvisation with electronics and has been a member of NowNet Arts Hub Ensemble, led by Sarah Weaver. She has been invited to do research and perform at international institutions such as IRCAM, University of California - Riverside, and Pontificia Universidad Católica (Chile). In 2022, she got the JackTrip Foundation Equipment Grant. She was recently awarded a prestigious grant by The São Paulo Research Foundation, FAPESP for a research project on the theory and practice on telematic music.

Composer and researcher with focus in the use of technology and interdisciplinary research in creative processes and musical analyses performances, Danilo Rossetti is author of musical works for different formations (solo or ensembles), acousmatic, live electronics and multi-modal (audiovisual installations, music and dance, networked and telematic music), and author and coauthor of several articles concerning creative processes in music and musical analyses. He is Assistant Professor at the Department of Arts of the Federal University of Mato Grosso, and collaborator professor at the Graduate Music Studies Program of the Institute of Arts at the State University of Campinas. He earned his Ph.D in Music Composition at UNICAMP, with a research stage at the Centre de Recherche Informatique et Création Musicale (CICM) of Paris 8 University, and he completed a postdoctoral research at NICS-UNICAMP, funded by FAPESP. His compositions have been played in many

international events and festivals.

11:00AM Session Discussion: 8:00AM-11:00AM Presenters and Audience

FRIDAY NOVEMBER 3

11:00AM Lab Session: All Conference Attendees

12:00PM Concert Demonstration: Network performance demoing co-creative tools to foster inclusive and engaging multimodal online musical experiences
Patricia Alessandrini, Sophia Alexandersson, Constantin Basica, Nigel Osborne, Hans Kretz, members of the Stanford New Ensemble (SNE), ParaSonic and Elefantôra, Stanford University

This inclusive network performance proposes to implement both tools for co-creativity and interfaces for immersive music-making. It relates to the topic of immersion by simultaneously engaging multiple modes of perception, which both renders online experiences more accessible to Disabled participants and creates a greater sense of immersion for all participants.

Patricia Alessandrini is a composer/sound artist creating interactive compositions, installations, and performance situations. Through these intermedial formats, she actively engages with issues of representation, interpretation, perception, and memory.

Her works have been presented in the Americas, Asia, Australia, and over 15 European countries, in festivals such as Archipel, Donaueschinger Musiktage, Electric Spring, Huddersfield Contemporary Music Festival, Heidelberger Frühling, Gaudeamus, Mostly Mozart, Musica Strasbourg, Rainy Days, Ruhrtriennale, Salzburg Biennale, TimeSpans, Wien Modern, and Wittener Tage für neue Kammermusik. She is also a performer and improvisor of live electronics, collaborating with Marco Fusi, Katie Porter, Heather Roche, Riot Ensemble, Tiptoe Ensemble and other artists, and designs and builds her own electronic interfaces and instruments. She was composer-in-residence at the 2010 soundSCAPE festival, and featured in ICELab with the International Contemporary Ensemble in 2012. In 2015-6, she was featured as a composer, curator and educator in four concert and outreach events of the Ensemble InterContemporain, as part of the Sound Kitchen series at the Gaîté lyrique, a centre for digital

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arts in Paris. She is a performer and improvisor of live electronics, and designs and builds her own electronic interfaces and instruments.

She studied composition and electronics at the Conservatorio di Bologna, Conservatoire National de Strasbourg and IRCAM, and holds two PhDs, from Princeton University and the Sonic Arts Research Centre (SARC) respectively. She has taught Computer-Assisted Composition at the Accademia Musicale Pescarese, Composition with Technology at Bangor University, Sonic Arts at Goldsmiths, University of London and currently teaches and performs research on embodied interaction, immersive audiovisual experience and accessible instrument design at CCRMA (Stanford). She serves on the international board of Share Music & Performing Arts, and as PI at Stanford for the projects Considering Disability in Online Cultural Experiences (2022-24) and Multisensory, User-centered, Shared cultural Experiences through Interactive Technology (MuseIT, 2022-25).

Her works are published by Babelscores, and may be consulted at patriciaalessandrini.net

Two portrait CDS will be released in 2023-24, on Huddersfield Contemporary Records and Another Timbre respectively, featuring Riot Ensemble, the Arditti Quartet and other artists.

1:00PM Concert Demonstration: Stretched Imaginations
Jonas Braasch, Rensselaer Polytechnic Institute
Large Ensemble in Various Locations

In this project I plan to bring a group of people across abilities together to play in the Immersive CRAIVE-Lab to nature images. During the pandemic I started wildlife and landscape videography and completed a short film, Polymorphosis, with six pieces featuring 8 different saxophone mouthpieces. The shared samples show 2 of the pieces in draft stage. For the stretched imagination concert I plan to work with immersive images and wildlife videography, taken from and inspired by my film, in our immersive lab, the CRAIVE-Lab using our 128-channel wave-field synthesis system. I plan to work with a group of people across abilities in connection to a current project from the Craig H. Neilsen Foundation to work with musicians with spinal cord injury -- to allow the virtual access of environments that are difficult to access.

Jonas Braasch is a psychoacoustician, aural architect, and experimental musician focusing on free and structured improvisation. His saxophone style

expands the traditional repertoire by incorporating various non-western elements and extended techniques. Jonas Braasch is a Professor in the Architectural Acoustics Program at Rensselaer Polytechnic Institute, where he also serves as Associate Director for Research at the Experimental Media and Performing Arts Center (EMPAC). Jonas received a Master's Degree in Physics from the Technical University of Dortmund in 1998, and two doctoral degrees from the University of Bochum in Electrical Engineering and Information Technology in 2001 and Musicology in 2004. His research work focuses on functional models of the auditory system, large-scale immersive and interactive virtual reality systems, and intelligent music systems.

2:00PM Paper: aesthetics and politics of distributed performance
Hans Kretz, Stanford University

This presentation takes as its starting point my experiences working with the Stanford New Ensemble over the period 2020-21, as global circumstances pushed us to transition from in-person to online rehearsing and performing. This shift was accomplished thanks to the invaluable commitment and energy of the staff at CCRMA (the Center for Computer Research in Music and Acoustics at Stanford University, led by Chris Chafe), who made it possible for us performers to maintain our musical activities under the best possible online conditions. In the course of growing familiar with JackTrip - a software developed by Chris Chafe and Juan Pablo Caceres at CCRMA for high-quality, uncompressed audio in networked performance - the ensemble participants and I were able to develop our understanding of the particulars of online music-making, on both a musical and an aesthetic level. Questions of student engagement and of community-making in this particular context were also critical to us. The research paper presents some of the outcomes of this reflective thought as it emerged through and beyond my and our engagement in network performance.

I begin by discussing the necessity for an explicit aesthetic investigation into distributed performance, some of its particular problematics and stakes, and seek to show how this practice provides an opportunity to reassess and reevaluate some of the traditional questions of aesthetics. But the scope of networked performance extends beyond a reflection confined to the sphere of musical practice. Indeed, questioning the nature of the phenomena that occur in a virtual acoustic space calls for a rethinking of certain assumptions in the light of the philosophy of mind. I explore in detail the implications for both thought and practice of the accentuation of musical space, a notion that in recent practice gains an unprecedented autonomy. I also consider how the knowledge gained through these contemplations can lead us to rethink the notion

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of the work of art as well as that of the musical object, and possibly the technical object - that is to say, the question of the modes of existence of works as well as of technical objects. All these elements culminate in the question of the work considered natively as an object that expresses itself online, in a plural way, namely as a collective creation that renews student commitment. I end by taking up again the notion of space, now understood as the public space of both music-making and philosophical discussion, and consider the potential for an 'ethics of discussion' seen through the lens of technological artefacts. It is the question of 'community' that makes dealing with the notion of an ethics of discussion a necessity; and the particular modification that 'community' undergoes in the context of networked performance is that of a redistribution of sense experience. JackTrip thus offers an analogy to the ideal community of communication, without needing to anchor it in an a priori that seeks to absolutely found the moral requirement in a transcendental pragmatics.

Hans Kretz is a conductor, pianist, improvisor, and researcher. He holds a PhD in Practice-based Music from the University of Leeds and a PhD in Philosophy from the University of Paris 8 Vincennes-Saint-Denis. He is currently a Lecturer in Music at Stanford University, where he conducts and directs the Stanford New Ensemble. As part of his curating and performance activities, he has been developing an interdisciplinary approach that led him to reevaluate the relation between written and oral practices, conventionally notated and graphic scores, improvisation and authorial practices. His recent endeavors include online performance and Human-computer co-creativity, as an improvisor, conductor and creative artist. His musical activities are subject to an ongoing practice-based research that aims to reevaluate the relation between social arts, social sciences and engineering sciences through the lens of the notion of judgment and artistic anthropology, with the arts and philosophies of South-East Asia at its center, through philosophy of culture, aesthetics, philosophical anthropology and philosophy of technology. His writings have appeared in the Recherches d'Esthétique Transculturelle series of L'Harmattan, and in the Cahiers Critiques de Philosophie.

2:45PM Paper: Cyber Aurality: Sound, Performance, and Virtual Space on the World Wide Web
Tommy Martinez, Brooklyn College

This presentation considers the use of networked virtual space as a musical tool from both an historical and speculative perspective. The research draws from popular depictions of 'cyberspace' in literature, cinema, and industry,

and demonstrates how they have become generative developments for a still emerging, virtually embodied sound practice. I will focus on a number of sound pieces selected from various developmental stages of the internet to illustrate the possibilities that these technologies have enabled for practitioners of the sonic arts. In addition to this examination of music in cyberspace, I will also look at pre-web, telematic pieces, which used phone systems, radio, and televised satellite broadcasts to collapse remote sites into one collective or shared experience. Realizations of networked musical works in 2-dimensional web spaces will also be considered where the browser window intervenes as a physical boundary, or dimensional stage for a work to be performed. From avant-garde electroacoustic performance to concerts in the video game Fortnite, the presentation charts a trajectory of networked music that looks to the past, as well as imagines a future of musical intervention for the next generation of spatial computing.

Tommy is a New York City based composer and technologist working primarily through guitar, synthesis, and code. His projects often begin with a computational curiosity, and explore physical sound models, virtuality, and psychoacoustic phenomena. He is interested in algorithmic approaches to music making, and manifestations of identity, tradition, and history in electronic culture. He creates custom software, music, and schematics for creative systems, and has performed at Pageant, MoMA PS1, DiMenna Center for Classical Music, Whitney Museum of American Art, National Sawdust, Harvestworks, and Pioneer Works.

As a programmer and systems designer, Tommy has worked with artists such as Okkyung Lee, Laurie Anderson, and Martine Syms. His work as a collaborator and engineer has been exhibited at Artists Space, Asia Society, Simone Subal Gallery, Bridget Donahue Gallery, Carnegie Mellon University, Frieze London 2017, Henie Onstad Kunstsenter, Istanbul Biennial 2019, JTT Gallery, Koenig & Clinton, Ringling Museum of Art, Kunsthalle Basel, Reyes & Finn, Rubin Museum, Sadie Coles HQ, The Shed, the ICA at Virginia Commonwealth University, and the 2019 Whitney Biennial.

From 2017-2021 Tommy was the Director of Technology at Pioneer Works where he led a residency and public programs initiative establishing support for artists investigating social issues through new technologies. He has lectured on sound and electronic art at the School for Poetic Computation, UC Berkeley (at CNMAT), Stanford University (at CCRMA), NYU (in the IDM and ITP programs), The New School, and Kunstakademie Düsseldorf among others. He is currently an adjunct professor at The School of Visual Art in New York City. Tommy is an MFA

candidate in the Sonic Arts program at CUNY Brooklyn College and is the co-editor of "Untethering the Web," a collection of essays on the future of the internet with Willa Köerner, published by Pioneer Works Press in 2022.

3:30PM Session Discussion: 12:00PM-3:30PM Presenters and Audience

SATURDAY NOVEMBER 4

11:00AM Lab Session: All Conference Attendees

12:00PM Concert Demonstration: In 3 – for network large ensemble
Sarah Weaver, NowNet Arts
Mike O'Connor, Wisconsin
Various performers at Orpheus Institute, Stanford University, and NowNet Arts Lab Ensemble individual locations

Composer/Conductor – Sarah Weaver
Performers/Improvisers – Electroacoustic mixed instrumentation ensembles at Orpheus Institute (Ghent, Belgium), CCRMA Stanford University, and the Lab Ensemble (multiple virtual locations)
Network Audio/Video Technical Director – Mike O'Connor

"In 3" is a network music piece for live performance via the internet utilizing three ensemble groups. The piece features the time network approach of Weaver's compositional system. Timing is spatialized through techniques for creating composites and synchronized with nodal concepts for time harmony. The piece incorporates composition, structured improvisation, and gestures. The title is a reference to Terry Riley's seminal piece "In C", to the origins of JackTrip network audio software as JackTriple, and to multidimensional concepts of the number three. A discussion of the composition system will follow the demonstration.

Sarah Weaver, Ph.D. is a New York-based contemporary composer, conductor, technologist, educator, and researcher working internationally as a specialist in large ensemble and network arts. Her work innovates contemplative concepts on network, synchrony, synthesis, and interconnection for artistic and social purpose. Weaver has composed solo, chamber, and large ensemble works for groundbreaking musicians for twenty-five years, integrating influences of classical, jazz, world, contemplative, electronic music, and individual music languages of performers. She is an innovator in network arts advancing live

performance via the internet by musicians and artists in different geographic locations. Weaver is Director of Sarah Weaver Ensemble, Director of NowNet Arts, Editor of the Journal of Network Music and Arts (JONMA), Director of JackTrip Foundation, and Faculty of The New School College of Performing Arts. www.sarahweaver.org

1:00PM Concert Demonstration: Sonic Network Arts Performance (SNAP)
Marc Ainger, Ann Stimson, Ohio State University
Scott Deal, Patti Cudd, Harry Chaubey, Various Locations

Marc Ainger (laptop and guitar,) Ann Stimson (flutes), Scott Deal (percussion), Patti Cudd (percussion)
Harry Chaubey (live-streaming, audio and video mixing and design)

For this concert, the Sonic Network Arts will present four performers connecting across the United States. Among other things, we will explore how the sounds of remote performers can be modified by each other in performance, across the distances spanned by the network.
We are interested in pitch and noise, and have thought about the continuum between the two - when does one become the other; how do we navigate these fluid boundaries?
After our concert, we will talk about some of these interests as well as talking about some hybrid (live/networked) concerts that we have performed recently. As time permits, we will discuss the ideas of immersion (in the concert hall? in the live-stream?). We are especially interested in a subject that Mathias Zeigler brought up at last year's NowNetArts conference - the idea of asymmetrical experiences for performers and audiences involved in both remote and hybrid performances. The idea that there is no "one" experience, but, rather, a multiplicity of experiences possible, is an idea that seems unique to the networked arts, and it leads to a lot of possibilities for understanding what it is that makes networked arts an emergent field.
Sonic Arts, founded by Ann Stimson and Marc Ainger, is interested in extending traditional instruments and and modes of performance into new, imaginative realms of action and interaction. Relationships between the physical and the imagined worlds are re-imagined through sound and motion. The group is interested in sound and music as a multi-modal, embodied phenomenon. Their repertoire ranges from through-composed, complexly notated scores, to freely-structured comprovisations, and many things in between.

Patti Cudd is a member of the acclaimed new music ensemble, Zeitgeist. She has participated in such festivals as the Bang on a Can Festival at Lincoln Center, ICMC (Greece, UK, China, Netherlands, US), Frau Musica Nova (Cologne, Germany), and Mexico City's Ciclo de Percusiones Series. Patti has worked closely with some of the most innovative composers of our time including Brian Ferneyhough, Morton Feldman, Roger Reynolds, Martin Bresnick, Pauline Oliveros, John Zorn, Cort Lippe, Julia Wolfe, Christian Wolff, Vinko Globokar and Frederic Rzewski

Scott Deal engages new pathways of computer interactivity, networked systems, and electroacoustics. His recordings have been described as "soaring, shimmering explorations of resplendent mood and incredible scale. Deal and composer Matthew Burtner were awarded the Internet2 IDEA award for their creation of "Auksalaq", a telematic opera described as "an important realization of opera for today's world". Deal is the Director of Tavel Arts and Technology Research Center at IUPUI, Indianapolis.

Harry Chaubey is a music technology researcher whose interests include the re-engineering framework for musical devices, the impact of change in tangible interaction on the end user and their sonic experiences, and both techniques and tools for live multimedia streaming over webRTC.

2:00PM Concert Demonstration: Invitation
Scott L. Miller, St. Cloud State University
Gloria Damijan, Vienna
Jane Rigler, University of Colorado, Colorado Springs
Adam Zahller, Minneapolis

Invitation was created as part of my JackTrip Certification training in 2021. I designed it to explore some possibilities of making music telematically for an audience listening on headphones and seeing the performance on a computer screen. The remote musicians and electronic sound are mixed in an immersive environment and delivered in a binaural audio format.

Invitation is the result of many wonderful conversations with Jane Rigler about creating a multi-sensorial experience for an audience of an online (telematic) event. The approach taken in this piece invites the listener to experience a work by following what objects (in their current environment) attract their attention, whether visual, aural, or otherwise sensorial experience. Their attention is sometimes subtly nudged by the spoken-word text or the musicians, who are themselves responding to the objects that attract them.

Scott L. Miller is an American composer best known for his electroacoustic chamber music and ecosystemic performance pieces. His music is characterized by collaborative approaches to composition and the use of electronics, exploring performer/computer improvisation and re-imagining ancient compositional processes through the lens of 21st century technology. Inspired by the inner-workings of sound and the microscopic in the natural and mechanical worlds, his music is the product of hands-on experimentation and collaboration with musicians and performers from across the spectrum of styles. His recent work experiments with VR applications in live concerts, first realized in his composition Raba, created for Tallinn-based Ensemble U:.

Miller's ecosystemic works model the behavior of objects from the natural world in electronic sound, creating interactive sonic ecosystems. Ecosystemic pieces are the result of autonomous sounds competing with each other for sonic space. Individual sounds tend to find a balance, which can be upset by changes to the sonic landscape, such as the introduction of new sounds. Because of this, sonic ecosystems are intimately tied to the space they are presented in. With or without humans, repeat performances produce unique results each time—sometimes subtle, sometimes drastic—while maintaining a recognizable identity. Recordings of his music are available on New Focus Recordings, Innova, Ein Klang, and other labels; many of these recordings feature his long-time collaborators, the new music ensemble Zeitgeist (whose albums he also produces). His music is published by the American Composers Edition, Tetractys, and Jeanné. His most recent albums include COINCIDENT (FCR337), Havona (#SR002), Lab Rat (ekr 070).

Miller is a Professor of Music at St. Cloud State University, Minnesota, where he teaches composition, electroacoustic music and theory. He is Past-President (2014—18) of the Society for Electro-Acoustic Music in the U.S. (SEAMUS) and presently Director of SEAMUS Records. He holds degrees from The University of Minnesota, The University of North Carolina - Chapel Hill and the State University of New York at Oneonta, and studied composition at the Czech-American Summer Music Institute and the Centre de Création Musicale Iannis Xenakis. Miller has been named a McKnight Composer Fellow three times (2001, 2013, 2018), a Fulbright Scholar (2014—15), and his work has been recognized by numerous state, national, and international arts organizations. He has been the featured artist at several festivals, including the Chicago Electro-Acoustic Music Festival, the Lipa Festival, and the Estonian Academy of Music's Autumn Festival, Sügisfest.

3:00PM Concert Demonstration: Quarantine Sessions Ensemble: California / Georgia / New York (USA), Belgium, Sweden
Constantin Basica, Chris Chafe, Henrik Von Coler, Henrik Frisk, Fernando Lopez-Lezcano, Fred Malouf, Chrysi Nanou, Juan Parra

The Coronavirus Crisis changed our lives and we had a long period without concerts as we knew them. In addition to the problem of large audiences, the regulations also made it 'virtually' impossible for musicians to get together, to rehearse, or perform. However, many technologies and solutions were already available, helping us to find
new ways of collaborating and transporting our work to audiences. During the lockdowns and ever since we have been programming, testing, and rehearsing in an online environment between California, Berlin, and Ghent. We present concerts that connect musicians from these locations and often with guests from other places. The sessions are broadcast live with audio and video feeds from each site.

Constantin Basica is a Romanian composer living in the San Francisco Bay Area, whose current work focuses on symbiotic interrelations between music, video, and performers. Currently, Basica is a postdoctoral scholar, lecturer, and the concert coordinator at
Stanford's Center for Computer Research in Music and Acoustics (CCRMA).

Chris Chafe is a composer, improvisor, and cellist, developing much of his music alongside computer-based research. He is Director of CCRMA.

Henrik von Coler is a musician and researcher in the field of electronic and electroacoustic music. He recently joined the faculty of Georgia Tech.

Henrik Frisk, professor at the Royal College of Music in Stockholm, is an active performer of improvised and contemporary music and a composer of acoustic and electroacoustic music.

Fernando Lopez-Lezcano enjoys imagining and building things, fixing them when they don't work, and improving them even if they seem to work just fine. At CCRMA since 1993, he combines his love of teaching and music composition and performance and is the center's Systems Administrator.

Fred Malouf is a composer/performer (guitar) involved in all kinds of music. He is primarily interested in improvisation and the use of technology in music.

Pianist Chrysi Nanou combines a career as a performer, curator, lecturer and a devoted teacher of all ages. Born in Greece, Chrysi's personal and professional aesthetics were formed in Paris and further shaped in the United States with her studies at the Ecole Normale de Musique de Paris / Alfred Cortot, The Peabody Institute of The Johns Hopkins University, and CCRMA.

Juan Parra's work in the field of live electronic music has made him recipient of numerous grants such as NFPK, Prins Bernhard Cultuurfonds, and the International Music Council. Since 2009 Cancino has been a fellow researcher at the Orpheus Institute (Ghent BE), focused on performance practice in Computer Music.

4:00PM Session Discussion: 12:00PM-4:00PM Presenters and Audience