Synchrony: Music of Sarah Weaver and Collaborations (2006–2019)

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Abstract

Synchrony is a prominent lens in works by composer Sarah Weaver and collaborations from the years 2006 to 2019 for solo, chamber, large ensemble, and network music pieces. "Synchrony," defined as perceptual alignment of distributed time and space components, has a practical motivation for transcending both latency and technology mediation in the network music medium. Synchrony also functions as a deep realm of artistic expression for both network and localized music. This essay outlines the technological context of performances, artistic strategies for synchrony, examples from the pieces, and new directions for the work going forward.

Technology Context

The network music medium has practical motivation for synchrony through transcending both latency and technological mediation. My network music pieces from the years 2006 to 2019 are mainly live performance with artists in different geographic locations via specialized network arts technology operating on high-bandwidth internet. There were also pieces that explored virtual worlds and field recordings as locations. For the scope of the essay, the network music focus will be on the pieces with live musicians. The technology includes network audio software JackTrip, designed for low-latency, high-quality audio over the internet. JackTrip has been utilized together with a wide variety of high-quality video conferencing platforms throughout the projects.[2] The latency amount depends on the geographic distance, network quality, and production gear. In total the latency between the locations in the pieces has ranged from approximately 50–500 ms audio and 100–1,000 ms video. The artistic strategies for the network music pieces have been designed for this range of overall latency.

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[2] Juan-Pablo Cáceres and Chris Chafe, "JackTrip: Under the Hood of an Engine for Network Audio," *Journal of New Music Research* 39, no. 3 (November 2010): 183–187, https://doi.org/10.1080/09298215.2010.481361.

The technological mediation in these pieces includes elements such as close microphones, speakers, video cameras, and video projection in order to see and hear the remote performers. This mediated layout creates a distributed experience of performing compared to localized work. Strategies for synchrony address perceptually connecting the performers within this mediation.

While synchrony has a practical motivation for network music, the artistic drive of the work is the expressions within the synchrony. The synchrony strategies are also applied to and inspired by localized music throughout these years. Local solo, chamber, and large ensemble works are represented in the essay to illustrate the relationship with network music and show synchrony strategies across the works.

Artistic Background

During the years 1998 through 2005, I studied and worked with Soundpainting, created by Walter Thompson, and Deep Listening®, created by Pauline Oliveros. These experiences were influential in developing strategies of synchrony.

Soundpainting has been defined as "the universal, multidisciplinary, live composing sign language for musicians, actors, dancers, and visual artists. Presently the language comprises more than 1,500 gestures that are signed by the Soundpainter (composer) to indicate the type of material desired of the performers."[3] In the large ensemble pieces designed for the localized and networked groups I work with, a hybrid of Soundpainting, original gestures, and traditional conducting were utilized. This combination, which focuses on structural gestures, intuitive shaping, and time layering, is effective for synchrony in the ensemble.

The Center for Deep Listening offers the following description of Deep Listening:

> Deep Listening, as developed by Oliveros, explores the difference between the involuntary nature of hearing and the voluntary, selective nature of listening. The practice includes bodywork, sonic meditations, interactive performance, listening to the sounds of daily life, nature, one's own thoughts, imagination and dreams. It cultivates a heightened awareness of the sonic environment, both external and internal, and promotes experimentation, improvisation, collaboration, playfulness and other creative skills vital to personal and community growth.[4]

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[3] Walter Thompson, "Soundpainting: Introduction," Soundpainting, accessed June 16, 2020, http://www.soundpainting.com/soundpainting.

[4] "Deep Listening," The Center for Deep Listening, accessed June 16, 2020, https://www.deeplistening.rpi.edu/deep-listening.

Deep Listening facilitates listening, intuition, and multidimensional thinking conducive to creating synchrony.[5] The skills of being able to listen across geographic distance, listen through mediated technology, intuit ways to perform together amidst latency, and to conceive of multi-location projects are all supported by studying Deep Listening. Additionally within the practice, the work on listening in dreams by Ione and listening with the body by Heloise Gold were influential in synchrony conceptions.[6]

Oliveros was on the cutting edge of new technologies and was an early pioneer of network music. She introduced me to the medium in 2006 during her collaboration at Rensselaer Polytechnic Institute with Chris Chafe, author of JackTrip, at Stanford University, and through her work in network music with the Deep Listening Institute. In 2007, the Telematic Circle was formed with faculty-student ensembles at Rensselaer Polytechnic Institute, directed by Oliveros, Jonas Braasch, Curtis Bahn, and myself; at the University of California, San Diego, directed by Mark Dresser, Adriene Jenik, Shahrokh Yadegari, and Victoria Petrovich; and at Stanford University, directed by Chris Chafe, Juan-Pablo Cáceres, and Ge Wang.[7] This collaboration was influential in developing practices and aesthetics for contemporary network music through these renowned artists and the approaches that also stemmed from their localized contemporary music. Transcending the latency and technology mediation in network music was inherent in this early work and foundational for the synchrony strategies.

In subsequent years, collaborations with Mark Dresser shaped compositional models and expansive professional work with innovative contemporary performers who have created individual musical languages on their instruments, including extended techniques. Dresser's trailblazing work in extended techniques, mixed meter and time layering, translation of metaphors into notated materials, original gesture development, and project conception are among the musical influences in the work.[8] Working with these elements and collaborations has been fundamental to the synchrony strategies. The collaborations involved cutting-edge, renowned performers, including those in New York during this time such as Yoon Sun Choi (voice), Jen Shyu (voice), Robert Dick (flute), Julie Ferrara (oboe), Sara Schoenbeck (bassoon), Jane Ira Bloom (soprano saxophone), Oliver Lake (alto saxophone), Marty Ehrlich (woodwinds), Ned Rothenberg (woodwinds), Joe McPhee (multi-instrumentalist), Amir ElSaffar (trumpet, voice, santoor), Miya Masaoka (koto), Min Xiao-Fen (pipa), James Zollar (trumpet), Ray Anderson (trombone), David Taylor (bass trombone), Mark Dresser (bass), Denman Maroney (piano), Ursel

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[5] Pauline Oliveros, *Deep Listening: A Composer's Sound Practice* (New York, NY: iUniverse, 2005).

[6] Heloise Gold, *Deeply Listening Body* (Troy, NY: M.O.M/Deep Listening Publications, 2018); Ione, *Listening in Dreams: A Compendium of Sound Dreams, Meditations, and Rituals for Deep Dreamers* (New York, NY: iUniverse, 2005).

[7] Pauline Oliveros et al., "Telematic Music: Six Perspectives," *Leonardo Music Journal* 19 (2009): 95-96.

[8] Mark Dresser, *Guts: Bass Explorations, Investigations, Explanations*, CD, DVD, and booklet (Jerusalem, Israel: Kadima, 2010).

Schlicht (piano), Gerry Hemingway (drumset), Doug Van Nort (electronics), and many others internationally.

To date, electronic music scholarship has provided much context and impact on synchrony strategies. These include the work in interactive music systems of Robert Rowe, theory and processing systems of Miller Puckette, analog audio work of Daria Semegen, and interdisciplinary sonification work, such as that of Chris Chafe with science, and Margaret Schedel and Daniel Weymouth with medicine.[9]

The history and innovations of these artists and artistic circles forge pathways into synchrony strategies in both the localized and network music realms. The artistic connection between localized and network music becomes self-evident and fluid in these circles. While the strategies manifest differently depending on the medium, concepts such as synchrony hold true across the music.

Network music is inherently collaborative due to the setting of multiple locations. The projects from 2006 to 2019 were developed together with long-term collaborators who also led pieces and influenced the strategies for synchrony. Mark Dresser, Chris Chafe, Matthias Ziegler, and Michael Dessen are the primary collaborators, and who, in their roles as artists and technologists, continue to shape the work and the medium. (See the Appendix for full listings of the projects, artists, and programs.)

Artistic Strategies

Artistic strategies for synchrony involve the structure of the pieces and their expanded elements. The pieces have components of composition, structured improvisation, and gesture. This structure is for synchrony of individual and group expression, frameworks of pre-conceived and intuitive processes, and adaptability. Stylistically, the pieces incorporate influences of classical, jazz, world, contemplative, and electronic music, as well as individual musical languages of pioneering performers, for synchrony in pluralism. The instrumentation is mixed, with an emphasis on balancing the range of instruments (soprano, alto, tenor, bass, percussion, electronics) and electroacoustic approaches. Some pieces have double trios, double quartets, and

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[9] See Robert Rowe, *Interactive Music Systems: Machine Listening and Composing* (Cambridge, MA: MIT Press, 1992); Miller Puckette, *The Theory and Technique of Electronic Music* (World Scientific Publishing, 2007), https://doi.org/10.1142/6277; Frank J. Oteri, "Daria Semegen: So Many Awareness Pixels Going On at the Same Time," New Music Box, July 1, 2018, https://nmbx.newmusicusa.org/daria-semegen-so-many-awareness-pixels-going-on-at-the-same-time; "In Conversation: Exploring Art and Science Collaborations," Arts and Humanities Research Council, November 28, 2014, https://www.youtube.com/watch?v=IzzU4oIy_h8; Ilene Berger Morris et al., "Music to One's Ears: Familiarity and Music Engagement in People With Parkinson's Disease," *Frontiers in Neuroscience* 13 (June 2019), https://doi.org/10.3389/fnins.2019.00661.

double conductors to emphasize multiplicity for synchrony. The primary configuration of the network music pieces is for 8 to 16 musicians located across 2 to 5 sites connected via the internet. The local pieces are for solo, chamber, and large ensembles. The large ensemble size generally remains up to 16 musicians in order to maintain individual expressions within a group context.

The conducting gestures are a combination of Soundpainting, original gestures, and traditional conducting. Traditional conducting is utilized to coordinate cues, beat-based timing, and expression. Soundpainting and original gestures have elements of content and processing. Generally, these gestures are used in pieces to process composed material, similar to how electronics musicians process samples. Various faders and shapings affect elements such as time, pitch, timbre, density, and layerings. Complex faders are among the original gestures developed in the pieces for a set of intertwined faders within a larger fader. The conducting gestures can indicate structured improvisation content that is either simultaneous with composed material or independent as its own expression. Some gestures occur in "split body" with half of the group following one side of the body and the other half following the other side of the body. "Gesture field" is another related mode, with musicians assigned to areas in front of the conductor, and who then respond when gestures occur in their assigned area. The gestures function both to distribute time and space components and coordinate them into synchrony. This gestural approach accommodates a variety of latencies; it allows for flexibility of timing and layering while functioning to clearly coordinate the ensemble.

Deep Listening and attention strategies are applied in the pieces for synchrony through intuition. The Deep Listening practice cultivates a wide range of listening and intuitive abilities for synchrony across locations and in the abstract. Attention strategies in the pieces are influenced by Oliveros's *Sonic Meditations* and *Deep Listening Pieces*.[10] The approach of text-based instructions that indicate the attention of the performer to tune into a range of physical and conceptual areas— such as past/present/future, local/global, inner/outer, dreams, and the body—as sources for musical material and interaction provides a connection for intuitive synchrony.

The composed material spans an array of approaches for synchrony. Layering multiple lines of music notation simultaneously allows for time construction within each line while the composite simultaneity can be staggered across latencies. Synchrony can be heard in the collage of lines, the textures they form, and/or points of intersection that are conceived as nodes. Nodes are applied as points of multiple layers of intersections that are heard together in time. Sequences of sets are utilized in a similar way linearly to create a gradient thread of materials. Devices such as heterophony, polyphony, multiplicity, stagger, phasing, oscillation, trill, difference tones and

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[10] Pauline Oliveros, *Sonic Meditations* (Sharon, VT: Smith Publications, 1974); Pauline Oliveros, *Deep Listening Pieces* (Troy, NY: Deep Listening Publications, 1990).

rhythms, stutter, hocket, time compression, time expansion, density variance, acceleration, and deceleration are utilized in the pieces in composed and conducted materials to widen time across latencies. Steady beat is used in some pieces locally while remote group(s) play in a different tempo or changing time. Mixed meter and meter fragments allow for synchrony across multiple time frames. Timing based on body processes such as the performer's heartbeat and breath integrate the body in synchrony. Long tones, drone, and textural saturation provide synchrony through continuation. Concepts such as impulse time and interpulsation join performers in composite time across latencies. Lines that last for the length of one breath, with micro-developments within the line, are launched and layered as a texture for synchrony. "Hits," short sounds indicated by gesture, are interspersed as single sounds, multiple sounds in a row, or shapings. Pitch elements are expanded to include gradient variations mediated by the performer on timbre, noise, vibrato, harmonics, multiphonics, gliss, resonance, microtonality, and ornamentation. Harmony mechanisms incorporate pitch centers, pitch sets, linear progressions, bitonality, multi tonality, and clusters to establish spatial components, stratifications, and alignments for synchrony.

The pieces are long form and through-composed. The lengths range from ten to twenty minutes for the solo and chamber works, and twenty-five to sixty minutes for the ensemble works. The form consists of a series of movements conceived as palettes of composed material, structured improvisation, and gestures.[11] The materials are generated through listening practice, translation of metaphors, and intuition.[12] The progression of the movements is associative, expressing multiple planes of the piece, and accumulates into a resultant synchrony.

The social motivations for the pieces conceive of synchrony on cultural and human levels. Works for peace, environmental balance, intercultural dialogue, the search for habitable planets, and contemplations of inner/outer synchrony express synchrony processes internally and in our world.

The approaches coalesce into broader resultant synchrony concepts of integral synthesis, multidimensional resonance, and interconnection. The concept of "here" is expressed as a composite location, composite reality, and composite sustain of time-space resonance.

2006–2008

The pieces from 2006 through 2008 focus on Soundpainting, structured improvisation, attention strategies, and incorporation of staff notation. The network music work was created in collaboration with Pauline Oliveros (Rensselaer Polytechnic Institute), Mark Dresser (University of California, San Diego), and Chris Chafe (Stanford University). The localized pieces for chamber

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[11] Walter Thompson refers to composed material within a Soundpainting as a "palette." See "Soundpainting: Introduction," Soundpainting, accessed June 16, 2020, http://www.soundpainting.com/soundpainting.

[12] Translation of metaphors is an approach developed in collaborations with Mark Dresser.

and large ensemble during these years carried more staff notation elements due to initial capacity for steady beat, in addition to time layering. They also established a core of musicians and their musical languages that became involved in the longer term work in the localized and network music pieces. The full components of composition, improvisation, gesture, artist circles, and technology were solidified in this period as well as the form. This continued to be utilized and developed throughout the work.

TeleCello Concerto (2007) by Chris Chafe and Sarah Weaver for network large ensemble and celletto soloist; premiered on March 22, 2007 at the event "100 Meeting Places," with ensembles at Loyola University Chicago, Rensselaer Polytechnic Institute, Stanford University, and University of California, Santa Cruz

The excerpt is from the second performance, held at the "Telematic Circle Concert" on November 16, 2007 with the ensembles SoundWIRE at Stanford University and Tintinnabulate at Rensselaer Polytechnic Institute.

SoundWIRE performers: Chris Chafe (celletto, director), Ge Wang (technical director), Juan-Pablo Caceres (synthesizer, technical director), Scot Gresham-Lancaster (video), Robert Hamilton (guitar), Adnan Marquez-Borbon (saxophone), Nicholas J. Bryan (clarinet, laptop), Baek San Chang (laptop, guitar, piano), Hiroko Terasawa (voice), Fernando Lopez-Lezcano (laptop), Cobi van Tonder (laptop, voice, objects), Turner Kirk (laptop, bagpipe), Hayden Bursk (laptop, guitar, drums), Gina Yiqing Gu (laptop, flute, piano), Elise MacMillan (violin, voice, kazoo), Diana Siwiak (flute, piano, voice), Yung-Shen [Dennis] Hsiao (laptop, guitar, piano), Max Citron (laptop, guitar, drums, synthesizer), Luke Dahl (melodica, synthesizer), Tania Marquez (piano, laptop), Joel Darnaver (8-string bass, guitar, rocks), Chris Warren (bass/guitar, feedback piano), Jeff Cooper (nylon guitar, harmonica), Henri Penttinen (eBottle)

Tintinnabulate performers: Pauline Oliveros (harmonica, conch, director), Sarah Weaver (conductor, director), Jonas Braasch (soprano saxophone, director), Curtis Bahn (dilruba, director), Cristyn Magnus (video, laptop), Stephanie Loveless (voice), Bobby Gibbs (clarinet), Anne Guthrie (french horn), Luke Noonan (mandolin), Jefferson Pitcher (guitar)

The composition has a substantial use of Soundpainting adapted for the network music medium, a series of nature images for graphic notation, and improvisation by the soloist in four channels for spatialization. The excerpt is in stereo and shows synchrony strategies including shaping sustained textures and multiple time frames.

An excerpt can be accessed through this link:

https://soundcloud.com/sarahweavermusic/telecello-concerto-excerpts

Excerpt Length (2:12)

Full Piece Length (20:00)

t/here in/to a/void form/less (2008) by Mark Dresser and Sarah Weaver for network large ensemble; premiered April 27, 2008 at the event "Telemergence," with ensembles VistaMuse at University of California, San Diego and Tintinnabulate at Rensselaer Polytechnic Institute

VistaMuse performers: Mark Dresser (conductor, contrabass), Jeff Kaiser (trumpet), Felix Olschofka (violin), Joe Bigham (electric guitar), Jason Ponce (laptop), Tom Ferguso (contrabass)

Tintinnabulate performers: Sarah Weaver (conductor), Jonas Braasch (saxophone), Curtis Bahn (dilruba), Trevor Sayre (violin), Bobby Gibbs (clarinet), Holland Hopson (saxophone), Jefferson Pitcher (guitar), Anne Guthrie (french horn), Cristyn Magnus (laptop), Stephanie Loveless (voice), Michael Bullock (contrabass), Will Swofford (electromagnetic swaramandal, tape, EIS), Patrick Murphy (laptop/processing)

The composition developed notating materials through translation of metaphor and utilization of two conductors simultaneously. The excerpt shows shaping sustained textures, time layers, timbral spectrums, and simultaneity of lines with two conductors.

An excerpt can be accessed through this link:

https://soundcloud.com/sarahweavermusic/there-into-avoid-formless-excerpt

Excerpt Length (5:27)

Full Piece Length (25:00)

Atone (2008) for trombone quartet; premiered October 17, 2008 in Budapest, Hungary; performed by Slide Force Trombone Quartet; directed by Abbie Conant, Institute for Trombone Chamber Music, *Hochschule für Musik Trossingen* (Trossingen, Germany)

The composition and excerpt centers on pitch F3, clusters and intervals related to the pitch, and shows strategies of microtonality, hocket, multiphonics, and saturation.

An excerpt can be accessed through this link:

https://soundcloud.com/sarahweavermusic/atone-excerpt

Excerpt Length (4:24)

Full Piece Length (10:00)

Spectral Syn (2008) by Mark Dresser and Sarah Weaver for large ensemble; premiered November 23, 2008 at Roulette in New York, NY

Performers: Jen Shyu (voice), Robert Dick (flute), Jane Ira Bloom (soprano saxophone), Marty Ehrlich (saxophone), Julie Ferrara (oboe), Sara Schoenbeck (bassoon), David Taylor (bass trombone), Ursel Schlicht (piano), Mark Dresser (bass), Gerry Hemingway (percussion), Sarah Weaver (conductor)

The composition shows synchrony through Soundpainting and original gestures, structured improvisation, notated materials, and the specific musical languages of individual performers. The integration of music notation with mixed-meter and gestural processing provided a new synthesis of multiplicity and dimensionality. The full piece is on the recording *Source*.[13] The excerpt displays mixed meter, multiple time planes, layered materials, contemplative steady-beat notation, timbral spectrum, oscillation, gliss, and rapid gesture applications.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/spectral-syn-4-excerpts
Excerpt Length (8:19)
Full Piece Length (25:00)

2009–2019

The pieces from 2009 to 2019 built upon the solidifications of synchrony strategies and expanded into international ensemble work, fluidity of notated elements between networked and localized works, and the application of synchrony to solo and chamber music. The work displays synchrony across extreme geographic distances, internal/external distances, and distance in the abstract, to show transcendence and interconnection.

Ascension (2010) for network large ensemble, premiered December 3, 2010 at the event "ResoNations 2010: International Telematic Concerts for Peace" performed by ensembles at the United Nations Headquarters (New York City); China Electronic Music Center of the Beijing Conservatory of Music (Beijing); National Center for Korean Traditional Performing Arts (Seoul). [14]

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[13] SLM Ensemble, Mark Dresser, Sarah Weaver, *Source* (SyncSource, 2015).

[14] Barbara Hesser and Harry N. Heinemann, "Music as a Global Resource: Solutions for Social and Economic Issues, 3rd edition" (United Nations Headquarters, 2011), 20

Performers in New York: Jen Shyu (voice), Jane Ira Bloom (soprano saxophone), Min Xiao-Fen (pipa), Mark Dresser (bass), Satoshi Takeishi (percussion), Sarah Weaver (conductor)

Performers in Beijing, China: Wu Na (guqin), Yan Jun (voice, electronics), Yang Ming (trombone), Wang Lichuan (percussion)

Performers in Seoul, South Korea: Chi-wan Park (piri), Hyang Hee Lee (saenghwang), Yoon Jeong Heo (geomungo), Woong-sik Kim (percussion)

The composition explores flowing from and returning to a drone. The layered materials are written to create nodal and spectral relationships. They accumulate into a conceived "Ascension" to peace as synchrony. The excerpt includes a spoken introduction with attention strategies.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/ascension-excerpts
Excerpt Length (9:48)
Full Piece Length (30:00)

Telein (2010) for network large ensemble, premiered June 13, 2010 at the event "Inspiraling 2010: Telematic Jazz Explorations"; performed by ensembles at New York University and the University of California, San Diego

Performers in San Diego: Hafez Modirzadeh (saxophone), Michael Dessen (trombone), Alex Cline (percussion), Mark Dresser (contrabass)

Performers in New York: Amir ElSaffar (trumpet), Oliver Lake (saxophone), Min Xiao-Fen (pipa), Gerry Hemingway (percussion), Sarah Weaver (conductor)

"Telein" is a Greek word that can mean "to initiate into the mysteries." It is related to the Greek words "telesma," "telos" and the Arabic "tilasm" [طلاسم]. The excerpt illustrates synchrony through layering of the drumsets in each location through split-body gesture, layered pulses and meters, impulse time, time development based on the Fibonacci spiral sequence, and timbral undulations.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/telein-excerpts
Excerpt Length (5:52)
Full Piece Length (30:00)

en-s(o) **(2011)** for network large ensemble, premiered November 2, 2011 at the event "Inspiraling 2011: Telematic Jazz Explorations"; performed by ensembles at New York University and the University of California, San Diego

Performers in San Diego: Nicole Mitchell (flute), Michael Dessen (trombone), Joshua White (piano), Mark Dresser (bass, conductor)

Performers in New York: Jane Ira Bloom (soprano saxophone), Amir ElSaffar (trumpet, voice), Oliver Lake (alto saxophone), Tomas Ulrich (cello), Ikue Mori (laptop), Sarah Weaver (conductor)

Video art: John Crawford

The composition title *en-s(o)* references metaphors of "ensō," the Japanese word for "circle" as well as a symbol associated with Zen; "en" as translation to "in"; portal and lucidity in "(o)," and the motion of the title as a deliverance into new balance and multidimensionality. The title has simultaneously symbolic layers, such as wholeness and void, perfection and imperfection, strength and vulnerability. This relates to aspects of network music such as latency; the distance yet intimacy of technology; and mixed reality states of internal, local, remote, and global.

The music incorporates devices such as pitch and pulse spectrums, generative nodal harmony, polyphony, call and response, multiplicity, impulse time, and sections with two simultaneous conductors. The live video was based on spectral developments of a circle, designed as a portal expression layer. The excerpts illustrate staggered layers, spectral drone with solo improvised line, multiplicity line, multiple time frames, and timbres including breath sounds.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/en-so-excerpts
Excerpt Length (11:13)
Full Piece Length (30:00)

Node 111 Volumes 1–3 **(2011–2016)** was written for solo percussionist Gerry Hemingway. Volume 1 premiered April 23, 2011 at the five-location event "Telematic Transform Music" to show applications of network music concepts within a solo piece. Volumes 2 and 3 premiered in subsequent years at solo concerts, featured along with the pieces "Reality Axis" (2016) and "Nexus Expanse" (2018) for Hemingway. The project coalesced into the album *Reality Axis*, released on the SyncSource label. The album explores abstract ideas of network as an individual, such as

interconnection of realities, fluidity and alignments of inner/outer states, and multidimensional multiplicity of self.[15]

The composition "Node 111" is conceived for nodality and spectral multiplicity of self. Hemingway's innovative language on the drum set, technical capacity for processing simultaneous layers, and intuitive ability for synthesizing complex structures allow for adapting ensemble strategies to the solo setting. The work utilizes pluralism structures such as multiplicity, polyrhythm, and simultaneity, together with nodal intersections, alignments, and attention strategies, to result in "multidimensional and integral resonance." The excerpt shows multiplicity and polyphonic time layers; impulse time; processes with three distinct, simultaneous musical phrases; intersections and alignments; and resultants.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/node-111-excerpts
Excerpt Length (5:27)
Full Piece Length (20:00)

Node 4x4 **(2011)** for a local quartet at New York University and geographically spatialized quartet at University of California, San Diego; University of California, Irvine; Concordia University; and the University of Washington; premiered April 23, 2011 at the event "Telematic Transform Music."

Performers:
New York: Oliver Lake (saxophone), Hadi Eldebek (oud), David Taylor (trombone), Gerry Hemingway (percussion), Sarah Weaver (conductor)

University of California, San Diego: Mark Dresser (bass)

University of California, Irvine: Michael Dessen (trombone)

Concordia University (Montreal): Eldad Tsabary (laptop)

University of Washington (Seattle): Stuart Dempster (trombone, didjeridu, conch shells)

The composition explores "node" as a point of multiple intersections and multidimensionality, as local and geographically spatialized in the double quartet. The piece also incorporates a convolver function written in MATLAB that sequences impulse responses from the acoustics of the five different locations and convolves them with the audio output signal of the laptop performer.

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[15] Sarah Weaver and Gerry Hemingway, *Reality Axis* (SyncSource, 2018).

The result is a composite acoustic of the five locations combined with the laptop performer output, so the audio from the laptop performer sounds in a virtual acoustic of the networked space. The excerpt first shows the laptop solo in the convolver function. Then a multi-layered ensemble groove state that gradually releases players until only the drumset is playing at the end.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/node-111-excerpts
Excerpt Length (4:40)
Full Piece Length (30:00)

Perpetual He(a)ring (2012) for network double trio, premiered May 4, 2012 at New York University (New York, NY) and Korea National University of the Arts at the event "Thresholding 2012: A Telematic Music Event, New York–Seoul."

Performers in New York: Ellery Eskelin (tenor saxophone), Mark Dresser (bass), Jim Black (drumset), Sarah Weaver (conductor)

Performers in Seoul: Bae Il Dong (p'ansori vocalist), Hyunseok Shin (haegeum), Simon Barker (drumset)

The composition sounds harmonization and healing within multiple energy thresholds such as internal/external and physical/metaphysical. "He(a)ring" is intended to represent "hear," "here," and "ring," with "here" as composite location and composite reality on momentary and macro planes, "hear" as the simultaneous process and challenge to hear with this within thresholds, and "ring" as in a "circular resonance." "Perpetual" is present as fundamental motion, sustainability, and resultants within and beyond the threshold state. Together, *Perpetual He(a)ring* expresses these elements as interdependent, healing, and sustaining. The excerpt shows attention strategies, long development of a shared line, and composite timing between the two percussionists.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/perpetual-hearing-excerpts
Excerpt Length (9:39)
Full Piece Length (30:00)

Cycles of Awakening (2012–2014) for large ensemble, premiered December 12, 2012 at The Stone (New York, NY) with the following ensemble: Robert Dick (flutes), Jane Ira Bloom (soprano

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saxophone), Oliver Lake (alto saxophone), David Taylor (bass trombone), Min Xiao-Fen (pipa), Miya Masaoka (koto), Ursel Schlicht (piano), Sarah Weaver (conductor).

The recording on the album *Source* in 2014 is performed by Jen Shyu (voice), Robert Dick (flutes), Jane Ira Bloom (soprano saxophone), Oliver Lake (alto saxophone), Ned Rothenberg (bass clarinet/shakuhachi), Amir ElSaffar (trumpet/voice/santoor), Ray Anderson (trombone), David Taylor (bass trombone), Min Xiao-Fen (pipa), Miya Masaoka (koto), Ursel Schlicht (piano), Mark Dresser (bass), Gerry Hemingway (drumset), Sarah Weaver (conductor).[16]

The composition conceives the title in individual and collective scales, physical and dimensional realms, and momentary and long-lasting processes. The excerpt shows gestural sequences including early complex faders, difference rhythms, drone, and layered notation.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/cycles-of-awakening-4-excerpts
Excerpt Length (12:37)
Full Piece Length (40:00)

***Transforming Totality* (2018)** for network large ensemble, premiered June 8, 2018 at the event "Interconnections for Peace: A Telematic Concert in Seoul, San Diego, New York" for the NowNet Arts Festival.

Performers:
DuArt Media Building, New York: Yoon Sun Choi (voice), Jane Ira Bloom (soprano saxophone), David Taylor (bass trombone), Satoshi Takeishi (percussion), Sarah Weaver (conductor)
University of California, San Diego: Nicole Mitchell (flutes), Stephanie Richards (trumpet), Michael Dessen (trombone), Mark Dresser (bass)

Seoul National University: Black String, members consisting of Yoon Jeong Heo (geomungo), Jean Oh (electric guitar), Aram Lee (daegeum), Min Wang Hwang (percussion, voice), with Seoul National University professor Ji Young Yi (gayageum)

The composition reflects on the roots of oppression within totalitarianism and transformation into authentic peace realities. The network setting is also conceived as a transformation of totality in physical location by connecting via the internet. The excerpt and full piece include devices such as harmonic transformations, time progressions of pauses and continuations, vibrato as a

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[16] SLM Ensemble, Mark Dresser, and Sarah Weaver, *Source* (SyncSource, 2015).

transforming agent, extensions and timbral shifts, compound textures and alignments, spatial explorations, and abstract planes for emergent synthesis.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/transforming-totality-excerpts
Excerpt Length (8:57)
Full Piece Length (30:00)

The following pieces are all on the compilation album *Synchrony Series: Music of Sarah Weaver and Collaborations.*[17]

Sound in Peace **(2016)** for voice, electronics, and multiple instruments; dedicated to the late Pauline Oliveros (1932–2016), the work premiered at memorials held in the years 2016 and 2017; recorded December 15, 2018 and performed by Joe McPhee (pocket trumpet) and Sarah Weaver (voice, chime, electronics)

The composition is a nodal text poem. The text was then edited and multi-tracked into an electronics file. The performers improvise together with this track.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/sound-in-peace-excerpt
Excerpt Length (2:01)
Full Piece Length (10:00)

Interhere **(2017)** for large ensemble, premiered December 16, 2017 at the DiMenna Center for Classical Music in New York, NY

Performers: Yoon Sun Choi (voice), Julie Ferrara (oboe), Sara Schoenbeck (bassoon), James Zollar (trumpet), Min Xiao-Fen (pipa), Jane Ira Bloom (soprano saxophone), Ned Rothenberg (alto saxophone, bass clarinet), David Taylor (bass trombone), Denman Maroney (piano), Mark Dresser (bass), Gerry Hemingway (percussion), Sarah Weaver (conductor)

The composition centers on concepts of networked spaces and multidimensional location in the abstract. The palettes have simultaneous layers as "locations" and intersections as an "inter-here." Each palette is also a "location" that connects with the other palettes into an accumulated

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[17] Sarah Weaver et al., *Synchrony Series: Music of Sarah Weaver and Collaborations* (SyncSource, 2019).

interconnection. The excerpt shows layered notation, gesture complex faders, and multiple time layers.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/interhere-excerpts
Excerpt Length (7:28)
Full Piece Length (40:00)

Symmetry of Presence (2018) for bass trombone and electronics; premiered December 15, 2018 at the DiMenna Center for Classical Music in New York, NY; performed by David Taylor and Sarah Weaver

The piece is written for David Taylor's innovative language on the bass trombone, together with music and graphic notation that emphasizes network, spectral, multiplicity, and contemplative concepts. The electronics are samples of Taylor playing bass trombone, processed by Sarah Weaver for spectralization and dimensionality; they enter as a simultaneity. The excerpt shows networked written material, graphic notation, improvisation, and electronics.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/symmetry-of-presence-excerpt
Excerpt Length (1:18)
Full Piece Length (14:03)

Universal Synchrony Music (2013–2019) for network large ensemble, a collaboration with the NASA Kepler/K2 Mission exploring musical, technological, and metaphorical realizations of synchrony. The premieres of volumes 1–4 took place between the years 2013 and 2016. These telematic and localized concerts were held at Stony Brook University; Stanford University; University of California, San Diego; Rensselaer Polytechnic Institute; York University; and Symphony Space in New York City.

Volume 5 premiered February 17, 2019 at the NowNet Arts Festival with performers at the DiMenna Center for Classical Music in New York City, York University in Toronto, and Northwestern University in Evanston, Illinois.

Volume 5 Performers: Jane Ira Bloom (soprano saxophone, New York), Robert Dick (flutes, New York), Min Xiao-Fen (pipa, New York), Ned Rothenberg (woodwinds, New York), Denman Maroney (piano, New York), Mark Dresser (bass, New York), Stephan Moore (electronics, Chicago), Kieran Maraj (electronics, Toronto), Doug Van Nort (electronics/sonifications, Toronto), Sarah Weaver (conductor, New York)

Kepler/K2 Mission Data Collaborators: Jon Jenkins (Analysis Lead for the NASA Kepler Mission, Senior Research Scientist, SETI Institute, NASA Ames Research Center), professors William Welsh, Jerome Orosz, and Donald Short (Astronomy Department, San Diego State University); Madeline Huberth (Center for Computer Research in Music and Acoustics, Stanford University); Daniel C. Fabrycky (Department of Astronomy and Astrophysics, University of Chicago)

The composition utilizes sonification of data on stars and planets in the Kepler field, 1,000–3,000 light years away, for presence across distance, inherent expressions of multiplanetary habitable systems, and interactions for synchrony. Concepts explored in *USM* include interaction and harmonization with cosmic sounds, creating perception of synchrony across local and extreme distances, Kepler/K2 Missions' search for habitability as a search for synchrony, and cultural and human levels of synchrony. Data elements that have been sonified for *USM* are star and planet light curves, phase curves, surface gravity, insolation, magnitude, radius, temperature, celestial coordinates, period, transit depth, transit duration, solar planet ratio, distance from Earth, and orbital alignments with Earth. Musical concepts are realized through elements such as resonance, timbral synthesis, alignment of intervals and harmonies, orbital approach to time and contour, and spatialization. The resultant synchrony of the piece is realized through synthesis of presence with these deep-space systems and intuitive transmissions of inherent cosmic synchronies.

Excerpt 1 can be accessed through this link:
https://soundcloud.com/sarahweavermusic/universal-synchrony-music-keplerk2-excerpt-1
Excerpt 1 Length (3:41)
Full Piece Length (55:00)

Excerpt 1 is a sonification of orbital alignments of Kepler-area habitable planets with Earth. A chime is played where each habitable planet aligns with Earth during its orbit. Pitch is highest for planets with fastest orbits, lowest for slowest orbits.

An excerpt can be accessed through this link:
https://soundcloud.com/sarahweavermusic/universal-synchrony-music-keplerk2-excerpt-2
Excerpt 2 Length (4:59)
Full Piece Length (55:00)

Excerpt 2 starts with small groups in the attention strategy "inner synchrony," then evolves with ensemble notated elements and sonification of a Kepler-47 habitable binary star system into inner/outer synchrony.

New Directions

The synchrony in these works will be embedded into a forthcoming body of work about "synthesis." While synchrony has its own space of meaning, synthesis will explore how synchrony is applied as a state on more levels of connection. The pieces will implement synchrony strategies and further develop their motion of alignments into synthesis. In terms of network technology, more work will be explored with video and the visual aspects of the venues—beyond representation of remote performers. This will also lead to more documentation that integrates the visual space more directly as a technology synthesis.

Due to the pandemic, the work has moved to models that take place entirely online and hybrid models that have reduced or removed an in-person audience. This accelerates the properties and dimensions of network music in these models. Concurrently, solo pieces and socially distanced chamber pieces are a focus during the time of physical distancing. The capacities of synchrony and synthesis in transcending distance and expressing through the arts together are substantial, both practically and artistically. New directions can be guided by this work and collaborations in the current circumstances, and in the metaphors more broadly over timespace.

Acknowledgements

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Appendix

Chicago Calling Festival/iEAR Series

Network music performance on October 25, 2006 at the Empty Bottle (Chicago, IL) for the "Chicago Calling: 24-Hour Arts Festival" directed by Dan Godston, and the iEAR Series at Rensselaer Polytechnic Institute (Troy, NY)

Program:
Resonant Frequencies, collaboration between Sarah Weaver and Pauline Oliveros

Filling Vessels, Paula Matthusen Ensemble

Performers in New York: Tintinnabulate, consisting of Pauline Oliveros (director and accordion), Daniel Valente (violin), Alex Chechlie (electric guitar/laptop), Michael Bullock (bass/trumpet), Charles Vease (guitar/laptop), Jeffrey Pitcher (guitar/electric guitar), Elizabeth Panzer (harp), Ryder Cooley (musical saw/accordion), Jonas Braasch (soprano saxophone), Bart Woodstrup (laptop)

Performers in Chicago: Sarah Weaver (conductor), Justin Foster (flute), Marc Elzweig (bass clarinet), Laurie Lee Moses (baritone saxophone), Matthew Field (guitar), Cindy Simone (djembe), Christopher Bruce (percussion), Sarah Clark (actor), Jeremy Blair (dancer), Cindy Huston (dancer), Kristi Murray (dancer), Amanda Telischak (dancer), Christopher Sorg (technical director)

100 Meeting Places: Telematic Music Concert

Network arts performance on March 22, 2007 at Loyola University Chicago; Rensselaer Polytechnic Institute (Troy, NY); Stanford University (Stanford, CA); and the University of California, Santa Cruz

Program:
100 Meeting Places, Pauline Oliveros
Less, Else Storesund
TeleCello Concerto, Chris Chafe and Sarah Weaver
Three Sides to Everything [improvisation]

Performers at Loyola University Chicago: Justin Foster (flute), Matthew Field (guitar), Laurie Lee Moses (saxophone), Cynthia Simone (percussion), Christopher Bruce (percussion), Lisa Abbatomarco (voice), Sarah Clark (voice), Asimina Chremos (dance), Sarah Weaver (conductor)

Performers at Rensselaer Polytechnic Institute: Tintinnabulate, with members Jonas Braasch (soprano saxophone), Alex Chechlie (electric guitar, ukelin, laptop), Bobby Gibbs (clarinet), Kyle McDonald (laptop), Elizabeth Panzer (harp), Jeff Pitcher (electric guitar), Gordon Rubin (flute, saxophone), Dan Valente (violin), Arthur Van Der Harten (bells and room video), Bart Woodstrup (bass, laptop, video), Pauline Oliveros (director)

Performers at Stanford University: SoundWIRE, with members Juan-Pablo Caceres (keyboard synthesizer), Chris Chafe (celletto), Justin Yang (saxophone)

Performers at the University of California, Santa Cruz: DANM, with members Synthia Payne (synthesizer, vocals, leaf tine, circuit-bent instruments), Richard Caceres (computer, electronics), Chris Preston (bass), Jamie Burkart (video), Phoenix Toews (video)

Deep Listening Convergence Concert
Performance on June 8, 2007 at the Sanctuary for Independent Media (Troy, NY)

Program and Performers:
Ambient Sins, Brigitte Meyer (cello) and Heloise Gold (dance)
The Worldwide Tuning Meditation, Pauline Oliveros
Mouth-piece, Kristin Norderval (voice & electronics), Viv Corringham (voice), Monique Buzzarté (trombone)
Untitled (quartet variations on a silent theme), Seth Cluett (amplified objects), Anne Bourne (cello, voice), Kenta Nagai (shamisen), Scott Smallwood (laptop)
Xylo 2, Al Margolis
Spiral Tap, Sarah Weaver for Conch Ensemble (Stuart Dempster, Pauline Oliveros, Monique Buzzarte, Will Swofford, Marc Jensen, and Sarah Weaver)
Patterns of Living and Sounding, Marc Jensen

the water of the ocean of sky, Will Swofford (electronics), Brigitte Meyer (cello), and Anne Bourne (cello)

HMMM, Kathy Kennedy

Ione's 12th Annual Dream Festival

Performance on October 19, 2007 in Kingston, NY

Program:

Dreamwaker, Sarah Weaver with Edo Paulus' Second Life sound installation, *Resonating-With-secondlifeWind*

Performers: Pauline Oliveros (accordion), Ione (spoken word), Mark Dresser (bass), Diana Wayburn (flute), Julie Ferrara (oboe), Gretchen Langheld (clarinet), Jody Espina (saxophone), Julianne Carney (violin), Eyal Maoz (guitar), Rich Rosenthal (guitar), James Ilgenfritz (bass), Sarah Weaver (conductor)

Telematic Circle Concert

Network arts performance on November 16, 2007 at Rensselaer Polytechnic Institute (Troy, NY); Stanford University (Stanford, CA); and the University of California, San Diego

Program:

TeleCello Concerto, Chris Chafe and Sarah Weaver for Tintinnabulate and SoundWIRE
Water Naught, Mark Dresser, Sarah Weaver, and collaboration with Tintinnabulate and VistaMuse
Three Ways for the improvisation trio Curtis Bahn (dilruba), Chris Chafe (celletto), Mark Dresser (bass), and all ensembles

Performers at Rensselaer Polytechnic Institute: Tintinnabulate, with members Pauline Oliveros (harmonica, conch, director), Sarah Weaver (conductor, director), Jonas Braasch (soprano saxophone, director), Curtis Bahn (dilruba, director), Cristyn Magnus (video, laptop), Stephanie Loveless (voice), Bobby Gibbs (clarinet), Anne Guthrie (french horn), Luke Noonan (mandolin), Jefferson Pitcher (guitar)

Performers at the University of California, San Diego: VistaMuse, with members Mark Dresser (conductor, bass, director), Adriene Jenik (visuals, director), Shahrokh Yadegari (director), Victoria Petrovich (director), Grace Leslie (flute), Batya MacAdam-Somer (violin), David Medine (viola), Ashley Walters (cello), Kaylie Duncan (cello), James Gordon Williams (piano)

Performers at Stanford University: SoundWIRE, with members Chris Chafe (celletto, director), Ge Wang (technical director), Juan-Pablo Caceres (synthesizer, technical director), Scot Gresham-Lancaster (video), Robert Hamilton (guitar), Adnan Marquez-Borbon (saxophone), Nicholas J. Bryan (clarinet, laptop), Baek San Chang (laptop, guitar, piano), Hiroko Terasawa (voice), Fernando Lopez-Lezcano (laptop), Cobi van Tonder (laptop, voice, objects), Turner Kirk (laptop, bagpipe), Hayden Bursk (laptop, guitar, drums), Gina Yiqing Gu (laptop, flute, piano), Elise MacMillan (violin, voice, kazoo), Diana Siwiak (flute, piano, voice), Yung-Shen "Dennis" Hsiao (laptop, guitar, piano), Max Citron (laptop, guitar, drums, synthesizer), Luke Dahl (melodica, synthesizer), Tania Marquez (piano, laptop), Joel Darnaver (8-string bass, guitar, rocks), Chris Warren (bass, guitar, feedback piano), Jeff Cooper (nylon guitar, harmonica), Henri Penttinen (eBottle)

Deep Listening Institute 9th Annual Women and Identity Festival
Performance on April 17, 2008 at the Emily Harvey Foundation (New York, NY)

Program:
Between the Body, Sarah Weaver
PowerHum, Tina Pearson and the Avatar Orchestra Metaverse in Second Life

ROMA: Economical and Effective, Maria Chavez

Performers in *Between the Body:* Leese Walker (actor), Michael-David Gordon (actor), Nicole Poole (actor), Julie Ferrara (oboe), Katie Down (flute), Andrea La Rose (flute), Diana Wayburn (flute), Alan Brady (clarinet), Bohdan Hilash (bass clarinet), Rob Henke (trumpet), Jody Espina (saxophone), Michael Attias (saxophone), Julianne Carney (violin), Carol Purdy (cello), Eyal Maoz (guitar), James Ilgenfritz (bass), Betsey Biggs (electronics), Sarah Weaver (conductor)

Telemergence
Network music performance on April 27, 2008 at Rensselaer Polytechnic Institute (Troy, NY); Stanford University (Stanford, CA); and the University of California, San Diego

Program:
the curved gap, William Swofford
Here Right Now, Monique Buzzarté
NOW! ...and then?, Kristin Norderval
Long Distance Sitting Piece #2: for Multiple Virtual Bodies and You, Michelle Nagai
t/here in/to a/void form/less, Mark Dresser and Sarah Weaver

Performers in *t/here in/to a/void form/less*: University of California, San Diego, VistaMuse, with members Mark Dresser (conductor, bass), Jeff Kaiser (trumpet), Felix Olschofka (violin), Joe Bigham (electric guitar), Jason Ponce (laptop), Tom Ferguson (contrabass); Rensselaer Polytechnic Institute, Tintinnabulate, with members Sarah Weaver (conductor), Jonas Braasch (saxophone), Curtis Bahn (dilruba), Trevor Sayre (violin), Bobby Gibbs (clarinet), Holland Hopson (saxophone), Jefferson Pitcher (guitar), Anne Guthrie (french horn), Cristyn Magnus (laptop), Stephanie Loveless (voice), Michael Bullock (contrabass), Will Swofford (electromagnetic swaramandal, tape, EIS), Patrick Murphy (laptop/processing)

Quiet Music Festival
Performance on July 4, 2008 at Triskel Arts Centre (Cork, Ireland)

Program:
Sema, Sarah Weaver

Performers: Lesley Greco (voice), Anne Hege (voice), Sarah Paden (voice), Zevin Polzin (guitar), Margaret Schedel (cello), Kevin Terry (guitar)

Slide Force Trombone Quartet
Performance on October 17, 2008 in Budapest, Hungary

Program:
Atone, Sarah Weaver

Performers: Slide Force Trombone Quartet, from the Institute for Trombone Chamber Music, *Hochschule für Musik Trossingen* (Trossingen, Germany), with Abbie Conant (director)

Spectral Syn
Performance on November 23, 2008 at Roulette (New York, NY)

Program:
Spectral Syn, Mark Dresser and Sarah Weaver

Performers: Jen Shyu (voice), Robert Dick (flute), Jane Ira Bloom (soprano saxophone), Marty Ehrlich (saxophone), Julie Ferrara (oboe), Sara Schoenbeck (bassoon), David Taylor (bass trombone), Ursel Schlicht (piano), Mark Dresser (bass), Gerry Hemingway (percussion), Sarah Weaver (conductor)

Cohe(a)rence

Performance on February 22, 2009 at Somewhere There (Toronto, Canada)

Program:
Cohe(a)rence, Sarah Weaver

Performers: Sarah Weaver (conductor) with vocalists DB Boyko, Lawrence Cotton, Christine Duncan, Jaron Freeman, Lesley Greco, Michelangelo Laffaldano, Sarah John, Shannon Kerr, Juliet Palmer, Scott Peterson, Lara Solnicki

Deep Tones for Peace: Telematic Bass Concert

Network music performance on April 26, 2009 at Hama'abada (The Laboratory) (Jerusalem, Israel), the Manhattan School of Music (New York, NY), and CUE Art Foundation (New York, NY)

Program:
Telematic bass ensemble pieces:
Invocation (Peace), William Parker
SLM, Mark Dresser and Sarah Weaver
Twelve Deep Tones for Joëlle, J.C. Jones
What can we make?, Barre Phillips
How can it work?, Barre Phillips

Solo bass pieces:
Untitled, Rufus Reid
Untitled, Barre Phillips
Deeply Peaceful, Henry Grimes
Sarabande, Minuet 1 & 2, and *Gigue* from Johann Sebastian Bach's *Cello Suite No. 1*, performed by Chi-chi Nwanoku
Neruda, music by Bert Turetzky, set to poetry by David Henderson
Sun Ra Suite, music by Bert Turetzky, set to poetry by Sun Ra
London Onion, music by Bert Turetzky, with text by Kurt Schwitters
1. The Children's Call, 2. The Olive Tree, 3. Two in One, David Phillips
Equations, J.C. Jones
Interrogations, Thierry Barbé
Pôles and Tropiques [with tape], Thierry Barbé
Sarabande, from Johann Sebastian Bach's *Fifth Suite for Cello*, performed by Thierry Barbé
Menada [for voice and double bass], Julia Tzenova (Bulgaria), performed by Irina-Kalina Goudeva

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Gaba'im [for voice and double bass], Rachel Yatzkan, with text by Yehonadav Perlman, performed
    by Irina-Kalina Goudeva
Transmission for the Days, Mark Dresser
Bacachaonne, Mark Dresser
Meditation on J.S. Bach, Flute Partita, arranged by Michael Klinghoffer
Untitled, Trevor Dunn
Untitled, Barre Phillips and David Phillips
O'Carolan's Draught, Turlough O'Carolan, variations by Lindsay Horner

Performers in Jerusalem: Thierry Barbe (France), Mark Dresser (U.S.), Irina-Kalina Goudeva (Bulgaria/Denmark), J.C. Jones (Israel), Michael Klinghoffer (Israel), Chi-chi Nwanoku (U.K.), Barre Phillips (U.S./France), Bertram Turetzky (U.S.)

Performers in New York: Trevor Dunn (U.S.), Henry Grimes (U.S.), Lindsey Horner (U.S.), James Ilgenfritz (U.S.), David Phillips (U.S.), Rufus Reid (U.S.), Sarah Weaver (U.S.)

Performer in Portugal: William Parker (U.S.)

Coordinators: Mark Dresser, Jean-Claude Jones, Gabriel Lanyi, William Parker, Barre Phillips, Suzanne Thorpe, Sarah Weaver

ResoNations: International Telematic Concerts for Peace

Network music performance on November 20, 2009 at the United Nations Headquarters (New York, NY); University of California, San Diego; the Banff Centre for Arts and Culture (Banff, Canada); Queen's University Belfast; and Dongguk University (Seoul, Korea)

Program:
Hope's Dream, Mark Dresser and Sarah Weaver
Disparate Bodies, Pedro Rebelo
Rock, Paper, Scissors, Chris Chafe
Green-colored Harmony, Jun Kim

Performers at the United Nations Headquarters, Economic and Social Council (ECOSOC) Chambers: Joan La Barbara (voice), Yoon Sun Choi (voice), Robert Dick (flute), Jane Ira Bloom (soprano saxophone), Marty Ehrlich (woodwinds), Oliver Lake (saxophone), David Taylor (bass trombone), Tomas Ulrich (cello), Samir Chatterjee (tabla), Sarah Weaver (conductor)

Performer at the University of California, San Diego, Center for Research in Computing and the Arts, CallT2 Auditorium: Mark Dresser (bass, conductor)

Performers at the Banff Centre for Arts and Culture: Chris Chafe (celletto), Lee Heuermann (soprano), Charles Nichols (electric violin), Sam Davidson (clarinet, electronics), Geoff Shoesmith (tuba, electronics), Knut Eric Jensen (piano)

Performers at Queen's University Belfast, Sonic Arts Research Centre: Pedro Rebelo (piano), Franziska Schroeder (saxophone), Manuela Meier (accordion), Steve Davis (drums, percussion), Justin Yang (saxophone, electronics)

Performers at Dongguk University, Seoul, South Korea, LeeHaeRang Art Theater, presented by Graduate School of Culture Technology (GSCT), KAIST, and MARTE Lab: SeungHee Lee (haegeum), Euy-shick Hong (saxophone), Woon Seung Yeo (visuals); Quartet X, consisting of Yoonbhum Cho (1st violin), Soyeon Park (2nd violin), Heejun Kim (viola), Saelan Oh (cello)

Tri Locus: Telematic Music
Network music performance on May 10, 2010 at the University of California, San Diego; Stanford University (Stanford, CA); and New York University (New York, NY)

Program:
Student and faculty works including *Motilocus* by Mark Dresser and Sarah Weaver

Performers at the University of California, San Diego: Meghann Welsh (voice), Josh Weinstein (piano), Paul Feyertag (cello), Levy Ahouandjinou (djembe), Steve Berkley (drums), Mark Dresser (bass)

Performers at Stanford University: Rob Hamilton (electric guitar), Chris Chafe (celletto)

Performer at New York University: Sarah Weaver (conductor)

Inspiraling: Telematic Jazz Explorations
Network music performance on June 13, 2010 at New York University (New York, NY) and the University of California, San Diego

Program:
Telein, Sarah Weaver
As We Know It, Oliver Lake

OilEye, Gerry Hemingway
Telewhorl, Mark Dresser

Performers at New York University: Amir ElSaffar (trumpet), Oliver Lake (saxophone), Min Xiao-Fen (pipa), Gerry Hemingway (percussion), Sarah Weaver (conductor)

Performers at the University of California, San Diego: Hafez Modirzadeh (saxophone), Michael Dessen (trombone), Alex Cline (percussion), Mark Dresser (bass)

Sarah Weaver Ensemble
Performance on July 14, 2010 at The Stone (New York, NY)

Program:
s/p(l)ace by Sarah Weaver

Performers: Jane Ira Bloom (soprano saxophone), Ned Rothenberg (alto saxophone), David Taylor (bass trombone), Kenta Nagai (shamisen), Jin Hi Kim (komungo), Doug Van Nort (greis, laptop), Gerry Hemingway (percussion), Sarah Weaver (conductor)

ResoNations: International Telematic Concerts for Peace
Network music performance on December 3, 2010 at the United Nations Headquarters (New York, NY), China Electronic Music Center (Beijing, China), and the Umyon Theater at the National Center for Korean Traditional Performing Arts (Seoul, South Korea)

Program:
The Spirits of the Water, Yoon-Jeong Heo
Harmony, Min Xiao-Fen
Ascension, Sarah Weaver

Performers at the United Nations Headquarters: Jen Shyu (voice), Jane Ira Bloom (soprano saxophone), Min Xiao-Fen (pipa), Mark Dresser (bass), Satoshi Takeishi (percussion), Sarah Weaver (conductor)

China Electronic Music Center: Wu Na (guqin), Yan Jun (voice and electronics), Yang Ming (trombone), Wang Lichuan (percussion)

Umyon Theater, National Center for Korean Traditional Performing Arts: Chi-wan Park (piri), Hyang Hee Lee (seng hwang), Yoon Jeong Heo (geomungo), Woong-sik Kim (percussion)

Center to Center Telematic Music

Network music performance on March 24, 2011 at New York University (New York, NY) and Queen's University Belfast

Program:
Center to Center, Sarah Weaver
Performers: New York University: Matthew Welch (bagpipes)
Queen's University Belfast: Franziska Schroeder (tenor saxophone)

Telematic Transform Music

Network music performance on April 23, 2011 at New York University (New York, NY); University of California, San Diego; University of California, Irvine; Concordia University (Montreal, Canada); and the University of Washington (Seattle)

Program:
Node 111, Sarah Weaver, performed by Gerry Hemingway (drumset)
Node 4x4, Sarah Weaver

Node 4x4 performers at New York University: Oliver Lake (saxophone), Hadi Eldebek (oud), David Taylor (bass trombone), Gerry Hemingway (percussion), Sarah Weaver (conductor)

More *Node 4x4* performers: Mark Dresser (bass) at the University of California, San Diego; Michael Dessen (trombone and electronics) at the University of California, Irvine; Eldad Tsabary (laptop) at Concordia University; Stuart Dempster (trombone, didjeridu, conch shells) at the University of Washington

Inspiraling: Telematic Jazz Explorations

Network arts performance on November 2, 2011 at New York University (New York, NY) and the University of California, San Diego

Program:
New Flowers in Old Tracks, Michael Dessen
en-s(o), Sarah Weaver
Nourishments, Mark Dresser

Performers at New York University: Jane Ira Bloom (soprano saxophone), Amir ElSaffar (trumpet), Oliver Lake (alto saxophone), Tomas Ulrich (cello), Ikue Mori (laptop), Sarah Weaver (conductor)

Performers at the University of California, San Diego: Nicole Mitchell (flute), Michael Dessen (trombone), Joshua White (piano), Mark Dresser (bass, conductor)

Video Artists: John Crawford, Sarah Jane Lapp

Set Design: Victoria Petrovich

Penta Locus Telematic Music Concert
Network music performance on November 20, 2011 at the University of California, San Diego; New York University (New York, NY); Queen's University Belfast; Concordia University (Montreal); and the *Hamburg Hochschule für Musik und Theater* (Hamburg, Germany)

Program:
Student and faculty pieces including *Exhalations* by the New York University and University of California, San Diego student ensembles

Performers at the University of California, San Diego: Mark Dresser (director, bass), Kyle Blair (piano), Joe Cantrell (electronics, tabletop guitar), Drew Ceccato (winds), Yeung-Ping Chen (clarinet), Tiffany Du Mouchelle (voice), Adam Goodwin (bass), Yvette Jackson (trumpet), Bonnie Lander (voice), Luke Oskam (conductor), Kjell Nordeson (percussion), Stephen Solook (percussion)

Performers at New York University: Sarah Weaver (director, conductor), Allen Fogelsanger (piano, laptop), Phillip Mayer (trombone), Andy McBeath (percussion, drumset), Sonia Megias Lopez (voice, conductor), Anna Morris (woodwinds), Timothy O'Hara (bass), Ian Shafer (oboe)

Performers at Queen's University Belfast: Pedro Rebelo (director), Franziska Schroeder (director, saxophone), Emily Robertson (piano), Robert Casey (piano), Adam Brown (tuba), Steve Davis (drums)

Performers at Concordia University: Eldad Tsabary (director, conductor), Michael Baker (laptop), Joe Browne, (laptop), Alexis Franco (laptop), Ivo Tobin Lippold (laptop), Marco Liy (laptop), Marek Madej (laptop), Greg Marino (laptop), Patrick McDowall (laptop), Kris McDougall (laptop), Michael Palumbo (laptop), Evan Stepanian (laptop), Stephen Trepanier (laptop), Patrick Valiquet (laptop)
Performers at the *Hamburg Hochschule für Musik und Theater*: Georg Hajdu (director), Konstantina Orlandatou (accordion, piano), Daniel Dominguez (electronics), Florian Vitez (electronics, Fender Rhodes piano), Xiao Fu (video, guqin), Jiaying Lu (violin)

New York University Global Telematic Music Concert

Network music performance on December 8, 2011 at New York University (New York, NY) and New York University Abu Dhabi (Abu Dhabi, United Arab Emirates)

Program:

Noor Al Salam — Light of Peace (I. Invocation, Call and Response; II. Growing Apart, Coming Back Together; III. New Place, Al-Badia), NYU Global Telematic Music Ensemble and Amir ElSaffar

Duo Improvisations, directed by Celina Charlier

Les Moutons de Panurge, Frederic Rzewski

Performers at New York University (New York, NY): Sarah Weaver (director, conductor), Amir ElSaffar (trumpet, voice, santoor), Sonia Megias Lopez (voice), Glen Saldanha (voice), Ian Shafer (oboe), Anna Morris (woodwinds), Philip Mayer (trombone), Timothy O'Hara (bass), Allen Fogel-sanger (keyboard, laptop), Andy McBeath (frame drum, drumset)

New York University Abu Dhabi: Celina Charlier (director, flute), Victoria Edmonds (flute), Ming-Yi Jeffrey Mei (clarinet), Eric Johnson (alto saxophone), Manuel Nivia (guitar), and Cristobal Martinez (keyboard)

Sarah Weaver Ensemble

Performance on January 24, 2012 at the Austrian Cultural Forum (New York, NY)

Program:

Re:Sonance of Mahler's Song of the Earth, Sarah Weaver

Performers: Min Xiao-Fen (voice, pipa), Yoon Sun Choi (voice), Mark Helias (bass), Gerry Hemingway (percussion), Doug Van Nort (laptop), Sarah Weaver (conductor); guest performers from the Manhattan New Music Project: Franz Hackl (trumpet), Bruce Williamson (woodwinds); and ensemble performer and member of the Manhattan New Music Project, David Taylor (bass trombone)

Sarah Weaver Ensemble

Performance on February 28, 2012 at The Stone (New York, NY)

Program:

Renewal Ringings, Sarah Weaver

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Performers: Robert Dick (flutes), Jane Ira Bloom (soprano saxophone), Ned Rothenberg (wood-winds), David Taylor (bass trombone), Miya Masaoka (koto), Ursel Schlicht (piano), Satoshi Takeishi (percussion), Sarah Weaver (conductor)

Telematic Transmissions of Togetherness
Network music performance on April 12, 2012 at New York University (New York, NY) and iHub Technology Innovation Center (Nairobi, Kenya)

Program:
Invocation for Pamoja, Sarah Weaver
As a Plant Grows, Nic Handahl
Song for Pamoja, the Nairobi Musicians

Performers at iHub: Victor Mbuvi (voice), Maureen Obadha (voice), Nyakio Munyinyi (percussion), Obuya (percussion), Bridget McGraw (coordinator)

Performers at New York University: Global Telematic Music Ensemble, consisting of Sarah Weaver (director, conductor), Nic Handahl (flute), Yngvil Vatn Guttu (trumpet), Spencer Hale (trombone), Allen Fogelsanger (piano, laptop), Patrick Swoboda (bass), Rebecca Reid (drumset)

Jazz Circulations: Telematic Music
Network music performance on April 17, 2012 at New York University (New York, NY) and New York University (Florence, Italy)

Program:
Contact, Conversation, Communion, Greg Burk
The creatures play across the sea, the stars, and silence, Allen Fogelsanger
Improvisation

Performers in New York: Sarah Weaver (director, conductor), Nic Handahl (flute), Phillip Mayer (trombone), Allen Fogelsanger (keyboard, laptop), Rebecca Reid (drumset)
Performers in Florence: Greg Burk (director, conductor, small instruments), Eric DeAngelis (baritone saxophone), Andrew Lederman (keyboard), Elizabeth Yanushkevich (violin)

Between Realities: Telematic Music
Network arts performance on April 26, 2012 at New York University (New York, NY), the University of Colorado Boulder, and the University of Montana (Missoula, MT)

Program:
Parasomnia, Yngvil Vatn Guttu
Telematic Dream Practice, Sarah Weaver
Originally Marketed Memoirs, Charles Nichols
Improvisation

Performers at New York University: Sarah Weaver (conductor), Nicholas Handahl (flute), Yngvil Vatn Guttu (trumpet), Allen Fogelsanger (piano), Patrick Swoboda (bass)

Performers at the University of Colorado Boulder: Cole Ingraham (laptop) and Synthia Payne (voices, noises)

Performers at the University of Montana: Charles Nichols (electric violin, electronics), Jacob Thomas (tenor saxophone, electronic wind instrument), Amber Bushnell (video processing)

Thresholding: A Telematic Music Event
Network music performance on May 4, 2012 at New York University (New York, NY) and the Korea National University of the Arts (Seoul, South Korea)

Program:
Perpetual He(a)ring, Sarah Weaver
Auspicious Meeting, Mark Dresser
Improvisation, Seoul musicians
Improvisation, New York musicians
Improvisation, New York and Seoul musicians
Performers at New York University: Ellery Eskelin (tenor saxophone), Mark Dresser (bass), Jim Black (drumset), Sarah Weaver (conductor)

Performers at Korea University of the Arts: Bae Il Dong (p'ansori vocalist), Hyunseok Shin (hageum), Simon Barker (drumset)

ResoNations: Breath of Peace
Performance on September 11, 2012 at Iridium Jazz Club (New York, NY)

Program:
Breath of Peace, Sarah Weaver
Improvisation

Performers: Jane Ira Bloom (soprano saxophone), Lety ElNaggar (ney), Joe McPhee (alto saxophone, multiple instruments), Zafer Tawil (oud), Erik Friedlander (cello), Mark Dresser (bass), Gerry Hemingway (drumset), Sarah Weaver (conductor)

Sarah Weaver Ensemble
Performance on December 22, 2012 at The Stone (New York, NY)

Program:
Cycles of Awakening, Sarah Weaver

Performers: Robert Dick (flutes), Jane Ira Bloom (soprano saxophone), Oliver Lake (alto saxophone), David Taylor (bass trombone), Min Xiao-Fen (pipa), Miya Masaoka (koto), Ursel Schlicht (piano), Sarah Weaver (conductor)

Virtual Tour: A Reduced-Carbon Footprint Concert Series
Network music performance on April 7, 2013 at the University of California, San Diego and Stony Brook University (Stony Brook, NY)

Program:
Universal Synchrony Music, Volume 1, Sarah Weaver
for instance, today, Michael Dessen
Telepathology, Nicole Mitchell
SubTeleToning, Mark Dresser

Performers at the University of California, San Diego: Nicole Mitchell (flutes), Michael Desson (trombone), Myra Melford (piano), Mark Dresser (bass)

Performers at Stony Brook University: Jane Ira Bloom (soprano saxophone), Min Xiao-Fen (pipa), Ray Anderson (trombone), Matt Wilson (drumset), Doug Van Nort (laptop, sonifications), Sarah Weaver (conductor)

ResoNations: Concert for Peace
Performance on September 11, 2013 at the Borough of Manhattan Community College (BMCC) Tribeca Performing Arts Center (New York, NY)
Program:
Solo improvisation, Mark Dresser (bass)
Duo improvisation, Jane Ira Bloom (soprano saxophone), Gaida (Syrian vocalist)
Duo improvisation, David Taylor (bass trombone), Zafer Tawil (nay, frame drum, riqq, dumbek)

Trio improvisation, by Joe McPhee (trumpet, saxophone), Oliver Lake (alto saxophone), George Ziadeh (oud)

Water of Peace/Ma'a Al-Salam ماء السلام , Sarah Weaver for ensemble

Performers: Gaida (Syrian vocalist), Jane Ira Bloom (soprano saxophone), Joe McPhee (trumpet, saxophone), Oliver Lake (alto saxophone), David Taylor (bass trombone), George Ziadeh (oud), Mark Dresser (bass), Zafer Tawil (nay, frame drum, riqq, dumbek), Sarah Weaver (conductor)

Time Axiom: Telematic Music Concert
Network arts performance on December 15, 2013 at New York University (New York, NY), Queen's University Belfast, and at Moods Jazz Club (Zurich, Switzerland) in partnership with the Zurich University of the Arts

Program:
Trifecta Tele Phases, Mark Dresser
between that is turning, Elizabeth Hoffman
The Becoming of Time, Sarah Weaver

Performers at New York University: Ray Anderson (trombone), Sylvie Courvoisier (piano), Mark Dresser (bass), Elizabeth Hoffman (laptop), Sarah Weaver (conductor)

Performers at Queen's University Belfast: Franziska Schroeder (saxophones), Paul Stapleton (bonsai sound sculpture), Tullis Rennie (laptop)

Performers at Moods Jazz Club: Matthias Ziegler (flutes), Lucas Niggli (drumset), Benjamin Burger (video art), Joel De Giovanni (video art)

Ray Anderson and Sarah Weaver: *The Point Being // Slideride*
Performance on February 23, 2014 at Roulette (New York, NY)
Program:
The Point Being, Ray Anderson and Sarah Weaver
Slideride, Ray Anderson, Craig Harris, Art Baron, Earl McIntyre (trombones)

Performers in *The Point Being*: Ray Anderson (trombone, voice), Jane Ira Bloom (soprano saxophone), Oliver Lake (alto saxophone), James Zollar (trumpet), Uri Caine (piano), Mark Helias (bass), Gerald Cleaver (drums), Sarah Weaver (conductor)

Universal Synchrony Music, Volume 2

Network music performance on April 6, 2014 at Stanford University (Stanford, CA) and Stony Brook University (Stony Brook, NY)

Program:

Universal Synchrony Music, Volume 2, Sarah Weaver

Performers at Stanford University: Alex Chechile (computer, electronics), Cathleen Grado (computer), Shu Yu Lin (computer), Robert Dick, (flutes)

Performers at Stony Brook University: Ray Anderson (trombone), Miya Masaoka (koto), Min Xiao-Fen (pipa, voice), Doug Van Nort (computer, electronics), Sarah Weaver (conductor)

Ray Anderson and Sarah Weaver: Ensemble Works

Performance on December 19, 2014 at The Stone (New York, NY)

Program:

The Point Being, Ray Anderson and Sarah Weaver

Performers: Ray Anderson (trombone, voice), Jane Ira Bloom (soprano saxophone), Marty Ehrlich (alto saxophone), James Zollar (trumpet), Uri Caine (piano), Mark Helias (bass), Gerald Cleaver (drums), Sarah Weaver (conductor)

Southeast Asia Tour

Performances took place between January 12–26, 2015 at various venues in Thailand, Malaysia, and Singapore

Program:

Solo Percussion Works, Gerry Hemingway

Node 111, Sarah Weaver for Gerry Hemingway

Bangkok, Thailand: Workshops at Silpakorn University and Princess Galyani Vadhana Institute of Music; concert at Zoo; video art screening at Jam Ciné Club

Kuala Lumpur, Malaysia: Concert at Toccata Studio; concert, workshop, and film screening at FINDARS

Singapore: Concert at the CHOPPA Experimental Music Festival, the LASALLE School of Contemporary Music

University Synchrony Music, Volume 3
Network music performances on January 30 and January 31, 2015 at Stanford University (Stanford, California) and York University (Toronto, Canada), in collaboration with NASA Kepler/K2 Mission

Program:
The Planets, Gustav Holst, performed by the Stanford Symphony Orchestra
Universal Synchrony Music, Volume 3, Sarah Weaver

Performers of *Universal Synchrony Music, Volume 3*: Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) Ensemble, directed by Chris Chafe; York University's Dis-PerSion Lab Ensemble, directed by Doug Van Nort

Mark Dresser Residency
Performances on May 25 and 28, 2015 at The Stone (New York, NY)

Program on May 25, 2015:
SubTeleToning, Mark Dresser
Spectral Syn, Mark Dresser and Sarah Weaver

Performers: Ned Rothenberg (soprano saxophone), Julie Ferrara (oboe), Rebekah Heller (bassoon), Matthias Ziegler (flutes), Marty Ehrlich (woodwinds), Denman Maroney (hyperpiano), Ben Gerstein (trombone), David Taylor (bass trombone), Matt Wilson (drums), Yoon Sun Choi (voice), Mark Dresser (bass), Sarah Weaver (conductor)

Program on May 28, 2015:
Deep Tones for Peace, Mark Dresser and Sarah Weaver

Performers: Rufus Reid, Ken Filiano, Brad Jones, John Lindberg, Rob Nairn, Lisa Mezzacappa, Dave Phillips, Mark Dresser (bassists); Sarah Weaver (conductor)

Gerry Hemingway Residency
Performance on August 1, 2015 at The Stone (New York, NY)
Program:
Node 111, Sarah Weaver for Gerry Hemingway (drumset)
Interactive Video Collaboration, Gerry Hemingway and Beth Warshafsky
Kernelings (selections), Gerry Hemingway

Source Album Release Concert
Performance on October 8, 2015 on Roulette, New York NY

Program:
Spectral Syn, Mark Dresser and Sarah Weaver
Cycles of Awakening, Sarah Weaver
SubTeleToning, Mark Dresser
Multidimensional Tunings, Sarah Weaver

Performers: Jen Shyu (voice), Robert Dick (flute), Julie Ferrara (oboe), Rebekah Heller (bassoon), Jane Ira Bloom (soprano saxophone), Oliver Lake (alto saxophone), Ned Rothenberg (bass clarinet, shakuhachi), James Zollar (trumpet), Ray Anderson (trombone), David Taylor (bass trombone), George Ziadeh (oud, voice), Miya Masaoka (koto), Ursel Schlicht (piano), Gerry Hemingway (drumset), Mark Dresser (bass), Sarah Weaver (conductor)

Sarah Weaver Ensemble: Solo and Chamber Works for Peace
Performance on December 7, 2015 at The Cell Theatre (New York, NY)

Program:
Inner Here, Sarah Weaver for Ray Anderson (trombone)
Refuge, Sarah Weaver for David Taylor (bass trombone) and Zafer Tawil (oud)
Improvisations

Performers: Ray Anderson (trombone), Jane Ira Bloom (soprano saxophone), Samir Chatterjee (tabla), Miya Masaoka (koto), Joe McPhee (saxophone, trumpet), Zafer Tawil (oud, violin, qanun, Arab percussion), David Taylor (bass trombone), Sarah Weaver (composer)

Sarah Weaver Residency
Residency from January 4–11, 2016 at FINDARS (Kuala Lumpur, Malaysia)

Performance:
Integral Multiplicity, Sarah Weaver (laptop)

Sarah Weaver Ensemble: Transform
Performance on February 19, 2016 at Symphony Space (New York, NY)

Program:
Multidimensional Tunings, Sarah Weaver

Universal Synchrony Music, Volume 4, Sarah Weaver

Performers: Jane Ira Bloom (soprano saxophone), David Morales Boroff (violin), Min Xiao-Fen (pipa), Ned Rothenberg (alto saxophone, bass clarinet), David Taylor (bass trombone), Denman Maroney (piano), Mark Helias (bass), Gerry Hemingway (drumset), Sam Pluta (computer, sonification), Doug Van Nort (computer, sonification), Sarah Weaver (conductor)

Changing Tides: Telematic Translocational Music
Network arts performance on April 10, 2016 at the University of California, San Diego and Stony Brook University (Stony Brook, NY)

Program:
Tidings and Sediments 3: San Diego ∞ Stony Brook, Mark Dresser
Between Us, Nicole Mitchell
Sustainable Balance, Sarah Weaver
Far Cries: Part 3, Stony Brook, Michael Dessen

Performers at the University of California, San Diego: Nicole Mitchell (flute), Stephanie Richards (trumpet), Michael Dessen (trombone), Mark Dresser (bass)

Performers at Stony Brook University: Marty Ehrlich (woodwinds), Min Xiao-Fen (pipa), Ray Anderson (trombone), Denman Maroney (piano), Sarah Weaver (conductor), Siew-wai Kok (video art)

Reasons of Resonance Tour: New Zealand
Performances on July 22–30, 2016 at venues in Auckland, Wellington, Christchurch, Dunedin, New Zealand

Program:
Node 111, Sarah Weaver for Gerry Hemingway
Reality Axis, Sarah Weaver for Gerry Hemingway
Interactive Video Collaborations, Gerry Hemingway and Beth Warshafsky
Solo Percussion Works, Gerry Hemingway

Performance Venues:
The Old Gym/Free Theatre (Christchurch, New Zealand)
The Anteroom (Port Chalmers Dunedin, New Zealand)
The Pyramid Club (Wellington, New Zealand)
The Audio Foundation (Auckland, New Zealand)

Interpretations Series
Performance on September 22, 2016 at Roulette (New York, NY)

Program:
Polydimensional Transformation, Sarah Weaver for Mark Dresser (bass)
Resonance Synthesis, Sarah Weaver

Performers in *Resonance Synthesis*: Jane Ira Bloom (soprano saxophone), Min Xiao-Fen (pipa, sanxian), Ellery Eskelin (tenor saxophone), David Taylor (bass trombone), Samir Chatterjee (tabla), Satoshi Takeishi (percussion), Denman Maroney (hyperpiano), Mark Dresser (bass), Sarah Weaver (conductor)

Reasons of Resonance
Performance on November 29, 2016 at The Cell Theatre (New York, NY)

Program:
Sound Geometries, Gerry Hemingway (drumset) and Beth Warshafsky (live video)
Node 111, Sarah Weaver for Gerry Hemingway (drumset)
Reality Axis, Sarah Weaver for Gerry Hemingway (drumset)

Sarah Weaver Ensemble: Solo and Chamber Works for Peace
Performance on December 20, 2016 at The Cell Theatre (New York, NY)

Program:
Guidance, Sarah Weaver; for David Taylor (bass trombone) and Sarah Weaver (electronics)
Sound in Peace [dedicated to Pauline Oliveros], Sarah Weaver; performed by Sarah Weaver (spoken voice, electronics) and Joe McPhee (saxophone)
Improvisations

Performers: Jane Ira Bloom (soprano saxophone), Yoon Sun Choi (voice), Julie Ferrara (oboe, english horn), Joe McPhee (saxophone, trumpet), Zafer Tawil (oud, nay, Arab percussion), David Taylor (bass trombone), Min Xiao-Fen (pipa), Sarah Weaver (spoken voice, electronics)

Deep Wireless Festival
Network music performance on February 16, 2017 at York University (Toronto, Canada) and the Exploratorium Berlin (Berlin, Germany)

Program:
EAOIU, Thomas Gerwin
Sound in Peace, Sarah Weaver
Soundpainting Improvisation, Doug Van Nort
Improvisations, Glen Hall

Performers: Electroacoustic ensembles at DisPerSion Lab (York University) and Exploratorium Berlin

Sarah Weaver Ensemble
Performance on June 21, 2017 for the Make Music New York festival at the 53rd Street New York Public Library and the Center at West Park (New York, NY)

Program:
Interhere, Sarah Weaver

Performers: Yoon Sun Choi (voice), Jane Ira Bloom (soprano saxophone), Julie Ferrara (oboe), Sara Schoenbeck (bassoon), Ben Gerstein (trombone), David Taylor (bass trombone), Sarah Weaver (electronics, conductor)

Mark Dresser Residency
Performance on September 14, 2017 at The Stone (New York, NY)

Program:
Deep Tones for Peace, Mark Dresser

Performers: Rufus Reid, Mark Helias, Linda Oh, Jorge Roeder, Ratzo Harris, Ken Filiano, Lisa Mezzacappa, Trevor Dunn, Dave Phillips, Thomas Helton, Mark Dresser (bassists); Sarah Weaver (conductor)

Sarah Weaver Ensemble
Performance on September 16, 2017 at the DiMenna Center for Classical Music (New York, NY)

Program:
Polydimensional Transformation, Sarah Weaver; for Mark Dresser (bass)
Interhere, Sarah Weaver

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Performers (*Interhere*): Yoon Sun Choi (voice), Julie Ferrara (oboe), Sara Schoenbeck (bassoon), James Zollar (trumpet), Min Xiao-Fen (pipa), Jane Ira Bloom (soprano saxophone), Ned Rothenberg (alto saxophone, bass clarinet), David Taylor (bass trombone), Denman Maroney (piano), Mark Dresser (bass), Gerry Hemingway (percussion), Sarah Weaver (conductor)

NowNet Arts Festival
Network arts performance on June 8, 2018 at the DuArt Building (New York, NY); University of California, San Diego; and Seoul National University

Program:
i-mediate(d) body, Daniel Pinheiro

Interconnections for Peace Telematic Ensemble Works:
Embody in Seoul, Mark Dresser
Transforming Totality, Sarah Weaver
Distance of Stare, Yoon Jeong Heo
What Peace Can We Hear, Michael Dessen
Cross-dimensional Pollination, Nicole Mitchell
Orbits, Stephanie Richards

Ensemble Performers:
The DuArt Building: Yoon Sun Choi (voice), Jane Ira Bloom (soprano saxophone), David Taylor (bass trombone), Satoshi Takeishi (percussion), Sarah Weaver (conductor)

University of California, San Diego: Nicole Mitchell (flutes), Stephanie Richards (trumpet), Michael Dessen (trombone), Mark Dresser (bass)

Seoul National University: Black String, featuring Yoon Jeong Heo (geomungo), Jean Oh (electric guitar), Aram Lee (daegeum), Min Wang Hwang (percussion, voice), with Seoul National University professor Ji Young Yi (gayageum)

Sarah Weaver Ensemble
Performance on December 15, 2018 at the DiMenna Center for Classical Music (New York, NY)

Program:
Sound in Peace, Sarah Weaver; performed by Joe McPhee (pocket trumpet) and Sarah Weaver (spoken voice, electronics, chime)

Symmetry of Presence, Sarah Weaver; performed by David Taylor (bass trombone, electronics) and Sarah Weaver (electronics)

Fountain of Synthesis, Sarah Weaver

Performers in *Fountain of Synthesis*: Jane Ira Bloom (soprano saxophone), Yoon Sun Choi (voice), Julie Ferrara (oboe, english horn), Joe McPhee (multiple instruments), Ned Rothenberg (woodwinds), Min Xiao-Fen (pipa, sanxian, ruan), Ray Anderson (trombone), David Taylor (bass trombone), Denman Maroney (piano), Mark Helias (bass), Gerald Cleaver (drumset, percussion), Sarah Weaver (conductor)

Solo Works for Gerry Hemingway

Performance on December 21, 2018 at The Cell Theatre (New York, NY)

Program:

Node 111, Sarah Weaver

Reality Axis, Sarah Weaver

Nexus Expanse, Sarah Weaver

All compositions performed by Gerry Hemingway (drumset, percussion)

NowNet Arts Festival

Network arts performance on February 17, 2019 at the DiMenna Center for Classical Music (New York), Northwestern University (Evanston, IL), York University (Toronto), Zurich University of the Arts, and a private venue in London

Program:

Mobile Phone Orchestra, Ng Chor Guan (London)

Trio, Mark Dresser (bass, New York), Denman Maroney (piano, New York), Matthias Ziegler (flutes, Zurich)

Universal Synchrony Music, Sarah Weaver

Improvisation for Peace

Performers in *Universal Synchrony Music* (New York): Jane Ira Bloom (soprano saxophone), Robert Dick (flutes), Min Xiao-Fen (pipa), Ned Rothenberg (woodwinds), Denman Maroney (piano), Mark Dresser (bass), Sarah Weaver (conductor)

Performer in *Universal Synchrony Music* (Evanston): Stephan Moore (electronics)

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Performers in *Universal Synchrony Music* (Toronto): Kieran Maraj (electronics) and Doug Van Nort (electronics, sonifications)

Sarah Weaver Ensemble

Performance on November 1, 2019 at the DiMenna Center for Classical Music (New York, NY)

Program:
Interhere, Sarah Weaver
Integral Infinity, Sarah Weaver

Performers: Jane Ira Bloom (soprano saxophone), Julie Ferrara (oboe), Ned Rothenberg (woodwinds), James Zollar (trumpet), Ray Anderson (trombone), David Taylor (bass trombone), Min Xiao-Fen (pipa), Denman Maroney (piano), Mark Dresser (bass), Gerry Hemingway (drumset), Sarah Weaver (conductor)