

## **Oliveros/Riley – Time Regained**

November 6, 2024    EMPAC Concert Hall, 4:00 pm

Program Notes by Michael Century

This concert showcases the musical partnership of Pauline Oliveros (1932-2016) and Terry Riley (1935- ) through the lens of time delay techniques. It features the world premiere performance of Oliveros's *The C(s) for Once* (1966) for flutes, voices, trumpets and tape delay system, followed by Riley's *Keyboard Study #1* (1965), Oliveros's piano solo dedicated to Riley, *A Trilling Piece for Terry* (2015), and correlated works by James Tenney and J.S. Bach. The program concludes with a performance using the digital version of Oliveros's Expanded Instrument System (designed by Oliveros, 1965-2016).

Oliveros and Riley met as students in San Francisco in the late 1950s. Their earliest collaborations occurred in free improvisation sessions, with Riley on piano and Oliveros on French horn. By the early 1960s, they were avid participants in the community of practice, centered around the San Francisco Tape Music Center<sup>1</sup>, experimenting with time delay, looping, and phasing in both electronic and instrumental settings. Viewed over the many decades of their interchanges, several common themes emerge, and a few divergences.

Both approached music as a meditative and spiritual practice, using improvisational technologies as a fundamental structuring element of compositional thought. Both developed refined techniques for organizing repetitive structures with looping, feedback, phasing, drones, microtonal variations, and expanded spectra. Oliveros in particular continued to tinker with new technologies as quickly as they came along, systematizing her approach in 1991, when she unified her methods going back to the 1960s under the quasi-cybernetic term, "Expanded Instrument System" (EIS).<sup>2</sup> In early studio versions of EIS, Oliveros improvised with tape recorders, oscillators, and mixers to produce what she termed a "very unstable, nonlinear music-making system."<sup>3</sup> She continued to work on EIS steadily with a changing cast of programmer-collaborators till her passing in 2016, branching in later decades into improvisational artificial agents, networked performance, inter-media systems, and instrument design across abilities. Riley meanwhile pursued a three-decade discipleship with Indian Classical vocalist Pandit Pran Nath, incorporating ragas into his improvisations and performing frequently with Pran Nath. Riley's catalog of notated compositions is extensive, with wide-ranging commissions ranging from the Kronos Quartet to Bang On A Can All-Stars, John Zorn to Claire Chase. To this day, he maintains an active career as a piano virtuoso.

Unlike Riley, Oliveros bookended her career with two faculty appointments at research universities, the first at the University of California, San Diego (1967-1980), and the second here at Rensselaer Polytechnic Institute (2001-2016). Since the 1970s, her teachings of sonic meditation and Deep Listening have radiated around the world. Now these teachings are institutionally housed at RPI under the stewardship of the Center for Deep Listening, directed by Stephanie Loveless. Seen as a latter-day research-artist committed to widening the possibilities for human flourishing through music, Oliveros formulated her own unique discourse of the musical cyborg, documented in several dozen scholarly papers, keynote addresses, and conference presentations. Speaking in Mexico City in 2006, Oliveros forecast that her Expanded

Instrument System would become “*more and more intelligent and self-determining so that someday, it will be able to make music that no human could dream of making. When that future border is crossed – when EIS is no longer an extension of my being, but half of a reciprocal merger of humanity and computer — my music will be a new birth cry from and of post-humanity.*”<sup>4</sup>

### ***The C(s) for Once, for flutes, voices, trumpets and tape delay system* (1966)**

In November 1964, the first all-Riley concert was performed at the San Francisco Tape Music Center. The centerpiece of the program was *In C*, a work without electronics for any number of musicians consisting of 53 mostly modal phrases arranged for recombination in interlocking patterns. *In C* became an instant classic of what would come to be called, somewhat paradoxically, “minimalist” music. Oliveros, who performed on the premiere of *In C*, likened the piece to a “flock of migrating birds in flight.”<sup>5</sup>

Oliveros composed *The C(s) for Once* in 1966 in an apparent reference to *In C*, advancing the approach by processing an instrumental and vocal ensemble with a three unit tape-delay system controlled by a console operator following a precise series of instructions. A single magnetic tape is threaded from Tape Recorder 1 (supply reel) through Tape Recorder 2 to Tape Recorder 3 (take up reel). The console operator cues the performers and adjusts the gain controls gradually. The work was recorded at the famed ONCE avant-garde music festival in 1966 at Ann Arbor, but today’s concert marks its first public performance.

### ***Modulating Canon* from *The Musical Offering* by J.S. Bach (1747)**

A musical canon uses strict imitation to create a multi-part texture in which the first voice (the leader) is delayed by following voices at a given time interval, with more or less variation in the repetitions. Bach composed a set of intricate puzzle canons to go with his encyclopedic tour-de-force of 18<sup>th</sup> century counterpoint, *The Musical Offering*. In this modulating “spiral” canon, one passage is repeated six times, with the pair of canonic voices modulating up a whole step to arrive back in the original key of C. Oliveros was known to think of delay in terms that go beyond classical counterpoint: “*Canons that are produced by the EIS can be disguised by the modulations that cause variations in the returns of sound input and also by the variety of spaces created by the multiple and varying delay times. These canons can be but are not necessarily pitch canons – they can be of time and timbre.*”<sup>6</sup>

### ***Keyboard Study #1* (1965)**

Riley notated a pair of keyboard studies in 1965 that he had performed as improvisations for piano over the previous few years. One, billed as *Coule (Flows)* was performed by Riley on the same program as the premiere of *In C* in 1964. When written down, it was numbered the first of the two Keyboard Studies. About both studies, Riley wrote that they are “intended to be played as long meditational exercises. Changes over long durations are important to their effect. *Keyboard Study No. 1* is an alternative hand exercise where the pattern of each hand substitutes various notes of the right and left hand cells while keeping up the obsessive alternative rhythm.”<sup>7</sup>

### ***A Trilling Piece for Terry* (2015)**

Sarah Cahill commissioned Oliveros to write this solo for piano to honor Riley’s 80<sup>th</sup> birthday. Characteristically, Oliveros’s score combines disarming simplicity of expression with

devastating challenges for the pianist. A trill, Oliveros notes, can be generalized beyond the simple case of a pair of alternating pitches, to include any combination of alternating sounds, so long as both hands are engaged separately to produce two trills at once, *at different rates*. The relative rates will “rarely be the same,” and usually in flux. “Most often rates will be continually changing, moving in and out of phase, with one hand accelerating slowly and the other hand decelerating.” The pianist is also encouraged to play off the keyboard, inside the piano, using simple preparations, sticks, mallets, pedals, and on the soundboard and wooden frame.

### ***For 12 Strings (Rising)* (1975)**

American composer James Tenney (1934-2006) was one of the first to enjoy the treasure trove of new musical possibilities invented at the Bell Laboratories in the 1950s and 1960s by computer scientist Max Matthews. Working with psychologist Roger Shephard, and following earlier work done by fellow composer-researcher Jean-Claude Risset, Tenney transposed to a string ensemble the results of emotionally powerful computer generated sound experiments undertaken at Bell Labs arising out of studies of the perception of pitch.<sup>8</sup> In 1963, Shepard discovered the effect, known as Shepard tones, in which “pitch can be made to go upward forever, spiraling up the pitch helix in a barber pole fashion.”<sup>9</sup> In the performance of this “spectral canon,” the strings are arranged in a circle above the audience, reinforcing the psychoacoustic effect of infinite ascent.

### ***Sympoiesis* (2024)**

The term *sympoiesis* means “making with,” and following its usage by feminist theorist Donna Haraway, it befits the kind of “art science worlding” Oliveros was fabulating in the Expanded Instrument System.<sup>10</sup> In the EIS, Oliveros wrote, “what is expanded is temporal: present/past/future is occurring simultaneously with transformations. What I play in the present comes back in the future while I am still playing, is transformed and becomes a part of the past. This situation keeps you busy listening.”<sup>11</sup> The EIS has four main modules, each with its own way of modulating time delayed sounds. One is an emulation of the 1980s Lexicon PCM 42 delay processor, noted for its smooth pitch modulations. The second has a much longer delay buffer – up to 100 seconds – with control functions that smoothly vary the rate and depth of LFO modulation. A third module has a pair of 20 delay lines allowing for individual algorithmic control of each delay – allowing for up to 40 discrete voices and capable of producing dense, slowly evolving micro-polyphonic textures. A fourth module renders output through ambisonic panners with various assignable geometric shapes, enabling what Oliveros liked to refer to as spatial progressions. As Oliveros summarized in 1995, with EIS, “The walls of an electronically created virtual acoustic space can expand or contract and assume new angles or virtual surfaces. [Listeners will] experience the relationship of moving in space in relation to sounds moving in the same space while the space itself is changing.”<sup>12</sup>

In *Sympoiesis* the improvising instrumentalists are not drawing on a pre-existing score or data set. Century plays a free bass accordion, following Oliveros’ re-conception of the instrument as a stereophonic musical source producing long continuous sound with irregular envelopes and prominent combination tones.<sup>13</sup> Layton’s 17-string bass guitar was custom-built and is played in the manner of a Pythagorean lyre, capable of unusual harmonic and resonant effects. Violist Fisher-Lochhead explores the space opened up by the dialectical encounter of body, instrument, mind, and technique in a particular material, social, spatial, and temporal conjuncture. His

playing draws on just intonation, fiddling, American improvised music, and the 20th-century European Avant-Garde.

### **Performer Biographies**

Michael Century, pianist, accordionist, and cultural theorist, is Professor of New Media and Music in the Arts Department at Rensselaer Polytechnic Institute. Musically at home in classical, contemporary, and improvisational settings, Century has a passion for experimentation, often interweaving his music with visual images and creating software applications for live performance and interactive installations. Recent performances include the Barcelona Center for Contemporary Culture, Stanford University's CCRMA, Harvestworks Art and Technology Center, and The Music Gallery (Toronto).

Vermont-based composer/performer Chris Fisher-Lochhead has blazed an idiosyncratic path through the landscape of contemporary music. Working across a broad range of styles and media, he has developed a creative practice which seeks to cultivate open, adventuresome, and playful spaces for musical and social experimentation. He holds degrees from the University of Michigan and Northwestern University and has served on the faculty of Rensselaer Polytechnic Institute since 2018.

An Assistant Professor of Music Composition in RPI's Department of Arts, Matthew Goodheart has an active career as a composer, improviser, instrument builder, and installation artist. His work ranges from large-scale microtonal and spatial compositions to open improvisations to immersive sound installations, which have been featured in concert halls, festivals, and galleries throughout the US and Europe. His numerous awards and honors include the Berlin Prize, a Civitella Ranieri Fellowship, and a Fulbright Grant.

Zach Layton is a multi-instrumentalist, composer, curator, and educator working collaboratively across genres and disciplines. He is a practitioner of a rare and unusual instrument, the 17-string bass. He has performed at the Guggenheim Museum, Lincoln Center, PS1, and many other venues in New York and internationally. A recipient of the Foundation for Contemporary Arts music/sound award, and a MacDowell Fellowship, Zach is currently Associate Professor of music production at Ramapo College of New Jersey.

Born in Greece, Chrysi Nanou'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 at Stanford University's Center for Computer Research in Music and Acoustics (CCRMA). Her repertoire is particularly diverse, ranging from core classical music to twentieth-century and contemporary music in a wide variety of genres. Appearing as a concert pianist in over 30 countries, she has premiered many compositions by young and eminent composers. Chrysi has served as the Artistic Coordinator of CCRMA (Stanford University, Palo Alto, California) and currently sits on the board of the International Computer Music Association (ICMA). She co-hosts the Leonardo LASER talks at Cambridge University and is an Associate Editor for the AI & Society: Knowledge, Culture and Communication Springer Journal.

Ross Rice (he/him/his) is presently a Lecturer at Rensselaer, teaching Sound Recording and Production and Songwriting Workshop classes in the RPI HASS Media Studio, and Faculty Advisor to WRPI and AES RPI. His 30+ year music career as artist, songwriter, studio and live musician, producer, and audio engineer has been centered in Memphis, Nashville, and Hudson Valley of New York, working with Duck Dunn and Steve Cropper (Booker T. and the MG's), Adrian Belew, Steve Earle, Peter Frampton, Isaac Hayes, George Clinton, among others, and most recently touring with Felix Cavaliere's Rascals. Rice is also a composer and published songwriter with Sony/ATV Publishing, and member of the Audio Educators Advisory Board.

Katherine Skovira, D.M.A., is a contemporary music specialist, researcher, curator, mezzo-soprano, and Faculty Fellow at RPI. She has performed with Maestro Maazel, Sir Rattle, and Barbara Hannigan, and worked with Pauline Oliveros in 2009. Katherine holds degrees in voice, pedagogy and government from Cornell University, Westminster Choir College, and the University of Minnesota, where she studied with James Dillon. She is co-librettist for the opera, *The Other Side of Silence*, an Opera America 2021 Discovery Grantee, and frequent presenter at the Voice Foundation, National Association of Teachers of Singing, and International Congress of Voice Teachers. Since 2017, Katherine has worked with innovators in the nonspeaking and SCI communities in performance, research and educational initiatives. Katherine has performed more than 30 world premieres of new works.

Robert Whalen (he/him/his) serves as Lecturer of Music and Conducting at Rensselaer, where he directs the Rensselaer Orchestra, Concert Choir, and Wind Symphony. Whalen has held faculty positions at the University of Chicago and Lewis and Clark College. He served as Conducting Fellow to Lorin Maazel and on conducting staff of Opera Philadelphia. Whalen is the composer of *The Other Side of Silence*, which was presented this fall at EMPAC in collaboration with Opera Saratoga.

## Works Cited

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<sup>1</sup> David W. Bernstein (editor) *The San Francisco Tape Music Center: 1960s Counterculture and the Avant-Garde*. Berkeley: University of California Press with the Experimental Media and Performing Arts Center, 2008.

<sup>2</sup> Pauline Oliveros and Panaiotis. "The Expanded Instrument System (EIS)." *Proceedings of the International Conference on Computer Music*, Montreal, 1991.

<sup>3</sup> Ted Gordon assesses the early EIS-based studio improvisations in these terms: "Oliveros's cybernetic imagining of the performing human body served to question, and fight against, the misogynist discrimination she faced as a queer, female composer working in an androcentric field for much of her career." Ted Gordon. "'Androgynous Music': Pauline Oliveros's Early Cybernetic Improvisation." *Contemporary Music Review*, 2022. p 5.

<sup>4</sup> Pauline Oliveros. "Sounding the Borders" keynote address presented at Universidad Nacional Autónoma de Mexico, 2006. In *Sounding the Margins: Collected Writings*. Deep Listening Publications, 2010. p 167.

<sup>5</sup> Diary Entry, February 3, 1971. In *Software for People*. Smith Publications, 1974, p. 72

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<sup>6</sup> Pauline Oliveros. (2007)). "The Expanded Instrument System: An Introduction and Brief History" in *Sounding the margins: collected writings: 1992-2009*. Kingston, NY, Deep Listening Publications: p. 209

<sup>7</sup> Terry Riley *The Piano Works*. Chester, 2015. 6

<sup>8</sup> Diana Deutsch. "Strange Loops and Circular Tones." *Musical Illusions and Phantom Worlds*. Oxford University Press, 2019. 61-70.

<sup>9</sup> Roger Shepard. "Pitch Perception and Measurement." In *Music, Cognition, and Computerized Sound*, edited by Perry R. Cook: MIT Press, 1999. 158

<sup>10</sup> Donna J. Haraway. *Staying with the Trouble: Making Kin in the Chthulucene*. Duke University Press, 2016. 67ff

<sup>11</sup> Pauline Oliveros. (2007)). "The Expanded Instrument System: An Introduction and Brief History" in *Sounding the margins: collected writings: 1992-2009*. Kingston, NY, Deep Listening Publications, 209

<sup>12</sup> Pauline Oliveros.. "Acoustic and Virtual Space as a Dynamic Element of Music." *Leonardo Music Journal* 5, 1995. 20

<sup>13</sup> Pauline Oliveros. "The Accordion (the Outsider)" In *Sounding the Margins: Collected Writings: 1992-2009*. Deep Listening Publications, 2010.