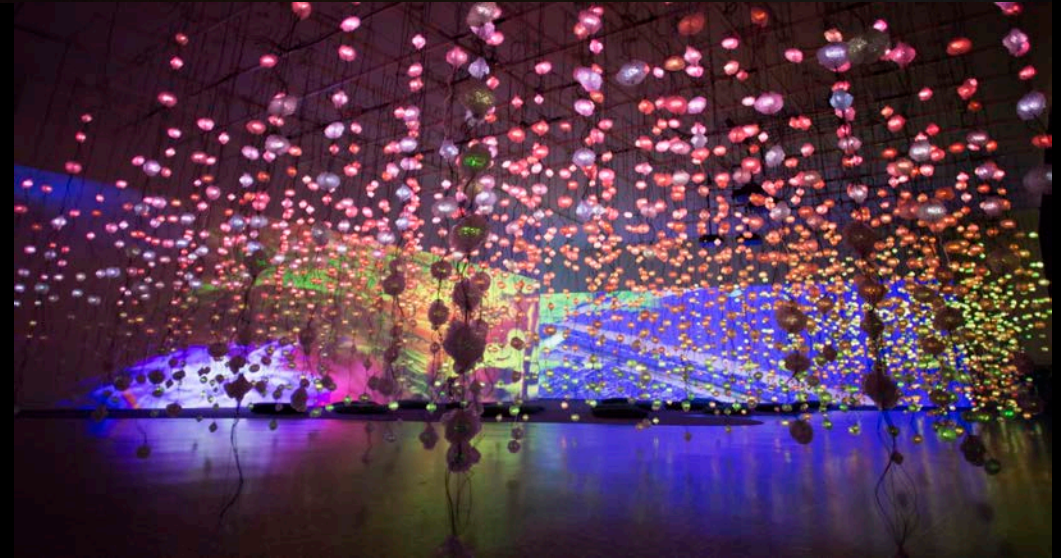


AHST 4342-001 (88513)
New Media Art Histories
Fall 2023
Dr. Charissa N. Terranova
University of Texas at Dallas
Arts & Humanities
Tuesdays-Thursdays 10:00-11:15
Class Location: ATC 2.602

Office Hours: By appointment
Office Location: ATC 2.704
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11/09/23

**Sound and Algorithms: Sisters with Transistors + The Work of Alvin
Lucier**



Views of *Pixel Forest* (2016) and *Worry Will Vanish* (2014),
an immersive experience by Swiss artist Pipilotti Rist at the
Museum of Fine Arts, Houston, 2023



Daphne Oram
(1925-2003)



Bebe Barron
(1925-2008)



Delia Derbyshire
(1937-2001)



Maryanne Amacher
(1938-2009)



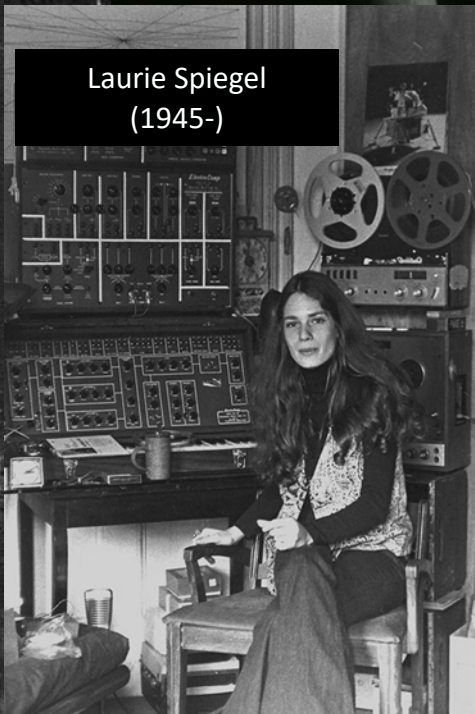
Pauline Oliveros
(1934-2016)



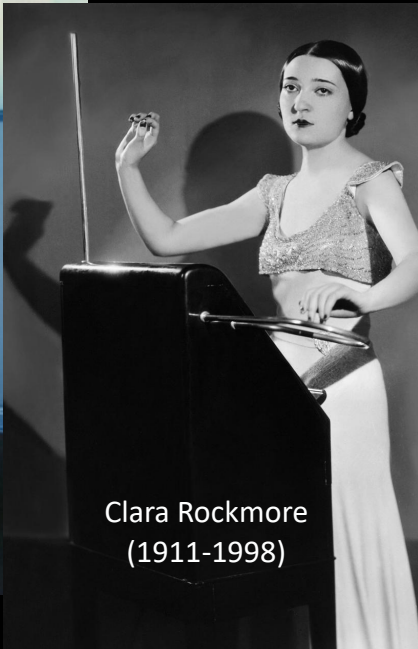
Suzanne Ciani
(1945-)



Elaine Rodigue
(1932-)



Laurie Spiegel
(1945-)



Clara Rockmore
(1911-1998)



Clara Rockmore
(1911-1998)



Clara Rockmore performing “The Swan” by Camille Saint-Saëns
<https://www.youtube.com/watch?v=pSzTPGINa5U>

Invented in 1928 by Louis Theremin, the theremin was the first electronic instrument. It has two antennae that are controlled by its player's two hands

What is a theremin?



Theremin



A theremin is an electronic musical instrument controlled without physical contact by the thereminist (performer). It is named after the Westernized name of its Soviet inventor, Leon Theremin, who patented the device in 1928.

Leon Theremin playing his instrument:

<https://www.youtube.com/watch?v=w5qf9O6c20o>



Suzanne Chiani, Buchla Concerts, 1975

<https://www.youtube.com/watch?v=f5Ji2Me6JhM>





John Cage (1912-1992)

Alvin Lucier (1931-2021)



Alvin Lucier (1931-)

- Born in Nashua, New Hampshire
- Began with piano as a child; his mother was a pianist
- Educated in Nashua public and parochial schools, the Portsmouth Abbey School, Yale, and Brandeis and spent two years in Rome on a Fulbright Scholarship
- From 1962 to 1970 he taught at Brandeis, where he conducted the Brandeis University Chamber Chorus, which devoted much of its time to the performance of new music.
- In 1966, along with Robert Ashley, David Behrman and Gordon Mumma, he co-founded the Sonic Arts Union.
- From 1968 to 2011 he taught at Wesleyan University where he was John Spencer Camp Professor of Music.

“If you listen to Beethoven, I guess you’re listening to what Beethoven is giving you in time – how it moves from point to point, key changes, modulations and stuff like that. In my music, you have to concentrate on one or two things ... one thing actually. I’ve been told that listening to it is paying attention to how you’re listening. It’s contemplative.”

Alvin Lucier

SELF-REFLEXIVITY



Sonic Arts Union

ALVIN LUCIER
VESPERS
ROBERT ASHLEY
PURPOSEFUL LADY SLOW AFTERNOON
DAVID BEHRMAN
RUNTHROUGH
GORDON MUMMA
HORNPIPE

WERGO
A DIVISION OF
SCHOTT MUSIC & MEDIA GMBH

WER 6940 2

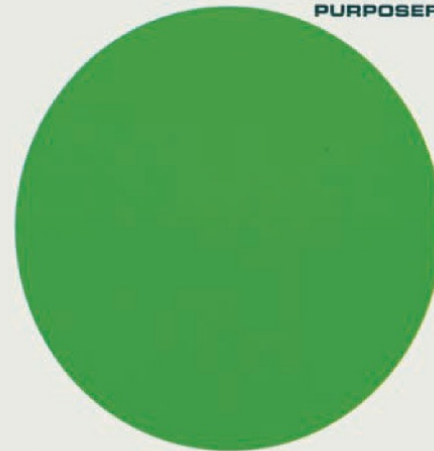
LC 00846

SONIC ARTS UNION

ALVIN LUCIER
ROBERT ASHLEY
DAVID BEHRMAN
GORDON MUMMA
ELECTRIC SOUND

WERGO

VESPERS
PURPOSEFUL LADY SLOW AFTERNOON
RUNTHROUGH
HORNPIPE



RECORDED AT THE
ROSE ART MUSEUM
BRANDEIS UNIVERSITY

Artist and Reasoning: Eske Brown
Original Recording Engineer: The Composers
Mastering: Gene Thompson
Album Design: Ruby Mazer's Art Department
Liner Notes: The Composers

The Sonic Arts Union was a collective of experimental musicians that was active between 1966 and 1976. The founding members of the group were Robert Ashley, David Behrman, Alvin Lucier, and Gordon Mumma, all of whom had worked together in the instrumental performances of the ONCE festivals. They initially toured under the name Sonic Arts Group, until, at Ashley's suggestion, the name was changed to Sonic Arts Union.

Inspired by the success that John Cage and David Tudor had in touring and designing their own equipment, The Union toured Europe and the United States, though each contributor was performing his own work, either by himself or occasionally with help from other members where required. On some tours, the Union expanded to include Mary Ashley, Shigeko Kubota, Mary Lucier, and Barbara Lloyd, who contributed their own works. The element uniting these individual works, according to David Behrman, was the desire to create pieces "in which established techniques were thrown away and the nature of sound was dealt with from scratch."

Alvin Lucier (1931-)
WORKS

- North American Time Capsule (1967)
<https://www.youtube.com/watch?v=eGrW61XjdGY>
- I am Sitting in the Room (1969)
<https://www.youtube.com/watch?v=fAxHILK30yk>

“Things were happening in the 1960s. It was wonderful in New York, John Cage, David Tudor, the Merce Cunningham Dance Company. Things were chaotic. You loved this work, but you didn’t know quite what it was all about. Which is fine. I think that the way it is always when you’re making something.”
Alvin Lucier

SELF-REFLEXIVITY



- North American Time Capsule (1967) for voices and vocoder
<https://www.youtube.com/watch?v=eGrW61XjdGY>
- It was composed at the invitation of Sylvania Applied Research Laboratories, which offered Lucier the use of a prototype vocoder.
- The score calls for members of the Chorus to “prepare a plan of activity using speech, singing, musical instruments, or any other sound producing means that might describe—to beings very far from the earth’s environment either in space or in time—the physical, social, spiritual, or any other situation in which we find ourselves at the present time.”
- Lucier described it metaphorically as a message to listeners who do not know about us. These could be very remote and exotic humans or the fabled "beings" in some other part of the universe. The message is encoded in accordance with the empirical fact that purely electronic signals are more easily transmitted through space (and through time) than the more complex waveforms of speech.

Does the North American Time Capsule broaden the spectrum of music culture or does it clash with it?

Lucier's work – Music or Not?

What is a VOCODER?



VOCODER



The word “vocoder” is a portmanteau of “voice” and “encoder.” It was invented by Homer Dudley, a telephone engineer at Bell Labs, in 1928. Through a machine, the voice is deconstructed into information, reconstructed into sound, and compressed for communication.

The vocoder examines speech by measuring how its spectral characteristics change over time. This results in a series of signals representing these modified frequencies at any particular time as the user speaks. In simple terms, the signal is split into a number of frequency bands (the larger this number, the more accurate the analysis) and the level of signal present at each frequency band gives the instantaneous representation of the spectral energy content. Thus, the vocoder dramatically reduces the amount of information needed to store speech, from a complete recording to a series of numbers.

Demonstrations:

<https://www.youtube.com/watch?v=miCMbuFMITo>

<https://www.youtube.com/watch?v=rkzLdOSraGc>

<https://www.youtube.com/watch?v=xgjAg9bMvYo>

How does Lucier convey meaning through sound without language?

How can we understand Lucier's North American Time Capsule as not just noise but art?

- I am Sitting in the Room (1969)
<https://www.youtube.com/watch?v=bhtO4DsSazc>
- In 1969 American composer Alvin Lucier first performed his landmark work / *Am Sitting in a Room*, conceived for voice and electromagnetic tape. Lucier read a text into a microphone.
- Attempting to smooth out his stutter, he began with the lines, “I am sitting in a room, the same one you are in now. I am recording the sound of my speaking voice.”
- As described in the text, his voice was recorded, then played back into the room. This process was repeated, and with each iteration Lucier’s recorded speech grew muddled, sounding distant, and specific sonic frequencies started to dominate the recorded sound.
- These tones that began to overwhelm the text and abstract the sonic landscape are the room’s resonant frequencies and are entirely specific to the architectural particularity of a given space. As these frequencies grew, reinforced with each playback, the result was an erasure of the human performer and the dominance of an environmental music.

https://www.moma.org/explore/inside_out/2015/01/20/collecting-alvin-luciers-i-am-sitting-in-a-room/

ENTROPY AND SOUND

Entropy is a measure of the randomness of molecules in a system and is central to the second law of thermodynamics and the combined law of thermodynamics, which deal with physical processes and whether they occur spontaneously. Here are further definitions:

1. A measure of the disorder or randomness in a closed system.
2. A measure of the loss of information in a transmitted message.
3. The tendency for all matter and energy in the universe to evolve toward a state of inert uniformity.
4. Inevitable and steady deterioration of a system or society.

What is Entropy?

Entropy is a thermodynamic quantity representing the unavailability of a system's thermal energy for conversion into mechanical work, often interpreted as the degree or gradual decline into disorder or randomness of the system.

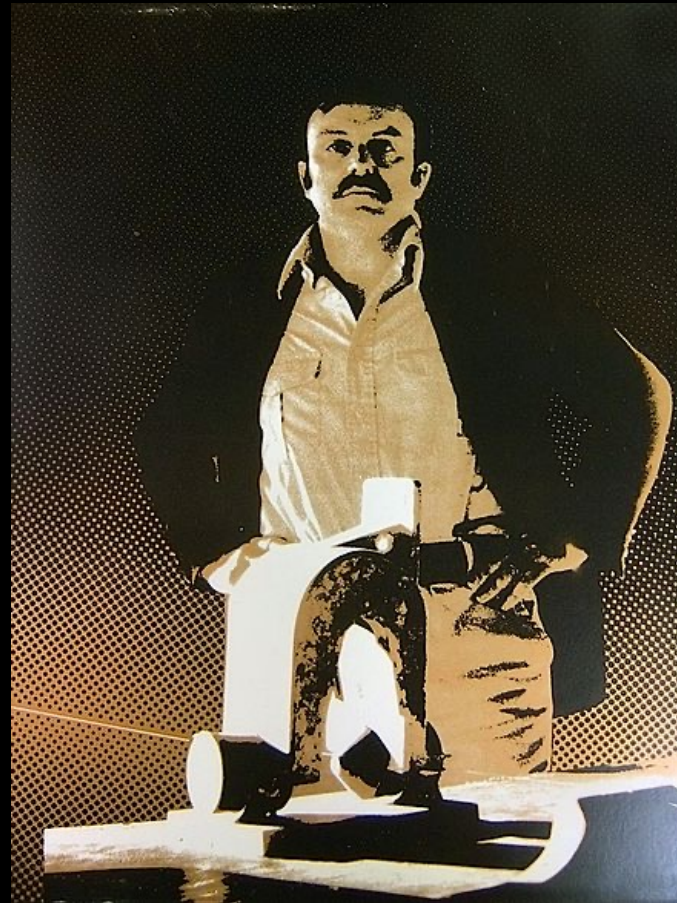
Randomness, messiness, chaos and disorder—yikes—someone fetch the broom!

Does Lucier deploy “constraints” in his work?
If so, how?

Alvin Lucier, Music On A Long Thin Wire. 1980

“Music On A Long Thin Wire” is a sound and installation piece conceived in 1977 and repeatedly staged thereafter. A single piano wire (originally three- to four-foot-long, then lengthened over the course of other performances) is stretched between bridges at either end. Both ends of the wire are connected to an amplifier, driving the wire with a sine wave oscillator. A horseshoe magnet is placed around the wire. When the wire is electrified, its current interacts with the magnetic field and the vibrations are picked up by microphones connected to the bridges. The resulting sound is controlled by a performer who control the sine wave oscillator inducing sonic phenomena as “nodal shifts, echo trains, noisy overdrivings.” [socks-studio.com]

<https://www.youtube.com/watch?v=TXgGfuLztXo>



Alvin Lucier behind the horseshoe magnet used to induce vibrations to the wire

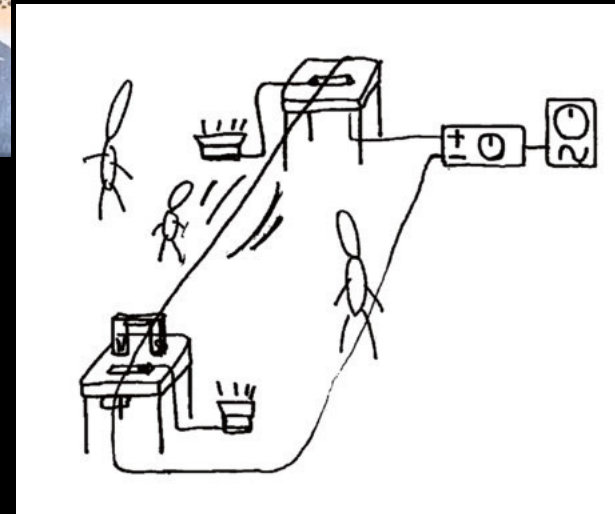


Diagram by diagram Mimino Wakuhazushi

Music on a Long Thin Wire



Extend a long metal wire (#1 music wire or equivalent) across a lengthways down a performance space. Affix both ends to the far edges of the tops of tables or other similar platforms and tighten them with clamps, hanging weights over pulleys, or other tension-creating devices. Route the ends of the wire to the outputs of an amplifier, forming a current-carrying loop. Insert wood, metal, or other resonant bridges under the wire at both ends. Set a large magnet down on the table at one end; adjust the height of the wire so that it passes directly between the poles of the magnet. Attach microphones to the bridges and route them through amplifiers to loudspeakers.

Drive the wire with a sine wave oscillator, causing it to vibrate from the interaction between the current in the wire and the magnetic field across it, in ways determined by the frequency and amplitude of the driving signal and the length, size, weight and tension of the wire.

Pick up the sounds of the vibrating wire with the microphones on the resonant bridges and amplify them for stereo listening through the loudspeakers.

Light the wire so that the modes of vibration are visible to viewers.

Alvin Lucier

https://www.youtube.com/watch?v=dwE4Jwk_zel

Does music need to have an intended meaning to be meaningful?

What is the role of human will and intention in Alvin Lucier's music practice?

How do we understand meaning in Lucier's
work?

Who is Robert Moog? What is a Moog?



Robert Moog (1934-2005)



- Moog was an American engineer and leading figure in the molding and creation of electronic music.
- He invented the Moog synthesizer.
- The Moog is an analog synthesizer based on the technological development of the transistor.
- The transistor made it easy for Moog to build small and inexpensive electronic music systems that were lighter in weight and more reliable than vacuum tube-based systems.
- Company founder Robert Arthur Moog had begun manufacturing and selling vacuum-tube theremin in kit form while he was a student in the early 1950s and marketed his first transistorized theremin kits in 1961.
- Dr. Moog began to develop the experimental synthesizer that would become known as the Moog in 1964.
- Dr. Bob Moog demonstrates his synthesizer:
<https://www.youtube.com/watch?v=0z0cbMkOvY0>



Wendy Carlos explaining her work:

<https://www.youtube.com/watch?v=UsW2EDGbDqg>

Switched-On Bach (1968):

https://www.youtube.com/watch?v=9belGk69gUo&list=PLuAoFbG-NHcFLf9_cINfl3PkNjidxDWlh

Evan Ziporyn Interviews
Minimalist Composer Alvin

Lucier

[https://www.youtube.com](https://www.youtube.com/watch?v=daDdilTVuWU)
[/watch?v=daDdilTVuWU](https://www.youtube.com/watch?v=daDdilTVuWU)

