

Still And Moving Lines Of Silence In Families Of Hyperbolas (1973- 74)

for singers, players, dancers, and unattended percussion.

by Alvin Lucier

Create standing waves in space caused by constructive and destructive interference patterns among sine waves from loudspeakers. With single sine wave oscillators, amplifiers, and pairs of loudspeakers, design sound geographies for dancers consisting of troughs and crests of soft and loud sound that form in outward-arching, symmetrically mirrored hyperbolic curves between the loudspeakers, the size and number of which are determined by the frequencies of the sine waves and the distances between the loudspeakers. Add loudspeakers, creating additional sets of hyperbolas, some of which intersect. When necessary, clear pathways for dancers by slightly changing the frequencies of the sine waves, shifting the locations of the hyperbolas.

Any number of dancers discover troughs of quiet sound along axes of pairs of loudspeakers which they may follow, changing directions, if they wish, at intersections. If bumps of sound occur due to reflections from walls or other surfaces, search for open paths or wait for troughs to shift.

Play any number of sine tones, simultaneously in chords or clusters, or sequentially, through any configuration of loudspeakers. Any number of singers sing long pure tones in near-unison above or below the given sine tones so as to produce audible beating, forming continually variable rhythmic patterns. Sing within intervals, beating upper pitches at one speed, lower ones at another, creating double rhythms.

Closely tune any number of oscillators, causing hyperbolas between loudspeakers to spin in elliptical patterns through space at speeds determined by the tunings and in directions toward the lower-pitched loudspeakers. Balance oscillator and amplifier volumes to achieve maximum and minimum amplitudes including silences, if possible, during beating cycles.

Play any number of brass and wind instruments in such a way as to create and spin hyperbolas toward and away from your instruments and sounding loudspeakers. Pluck any number of stringed instruments, including electric guitars, to create series of beats, the speeds and numbers of which are determined by the tunings and amplitudes of the plucked sounds and sine tones.

Deploy any number of snare drums (metal snares) anywhere in space. Search for resonant frequencies of the drums and spin hyperbolas of those frequencies across them, the crests of which cause sympathetic vibrations, creating rhythmic patterns determined by the speeds of the beatings.

Parts of this work may be performed singly or in any combination simultaneously, in any order.