critical loci

an installation for subwoofer and room

for Raven Chacon

michael winter (schloss solitude; 2024)

Description

In *critical loci*, low tones sounding from a subwoofer activate a room by making objects in the room vibrate sympathetically.

The room should be of a size such that the sound from the subwoofer, generated electronically, fills the room completely. The room should contain objects that will vibrate sympathetically in a way that changes based on the slowly changing patterns radiating from the subwoofer.

The lighting should be kept dim such that people can comfortably explore the room while also able to sit relatively undisturbed for long periods of time. A realization could also include lights with loose electrical connections such that the lights flicker when the connections vibrate sympathetically.

Typically, a resonant room already filled with objects and fixtures will activate without any intervention. However, an installation of the piece could be 'furnished' such that objects prone to sympathetic vibrations are placed throughout the space. Examples of objects that commonly tend to vibrate sympathetically from the electronically generated sound include:

- cavities covered with metal gratings such that the connecting screws/fasteners are not completely tightened
- glass bottles on shelves
- light fixtures
- unsecured windows

Another possible realization of the installation could be as a performance or augmented by performances, where, in real-time, a person or group of people furnishes the room by selecting and positioning objects such that the room becomes sufficiently activated by sympathetic vibrations.

Code

The following code, written in the SuperCollider language synthesizes the electronically generated sound which will activate the room. It is a simplified version of a part of my piece *Remembering Clive Wearing*. The sympathetic vibrations that typically result from performing *Remembering Clive Wearing* led to the appropriation of the code for this installation. The code generates 9 sine tones: 3 of which are within plus or minus 3 hertz of a fundamental, 3 of which are within plus or minus 3 hertz of an octave above the fundamental, and 3 of which are within plus or minus 3 hertz of two octave above the fundamental. Occasionally each tone shifts within their respective 6 hertz range, changing the beating pattern, which, in turn, changes how the room is activated. This code could be extended or altered such that the basic principle is observed.

```
(
SynthDef(\critical_loci, {
    var fundamental, signal, ampMult;

    fundamental = 60; //fundamental in hZ
    signal = {|i|
        var freqMult, switch;
        freqMult = pow(2, 2 - (i / 3).trunc).postln;
        switch = Dust.kr(0.015); //adjusting this will effect how often the beating pattern changes
        SinOsc.ar(fundamental * freqMult + TRand.kr(-3, 3, switch), 0, (1 / pow(freqMult, 2)))
    } ! 9;
    ampMult = 0.1; //adjustable for overall level
    Out.ar([0,1], Mix.new(signal) * ampMult);
}).play
)
```

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