

# Playground

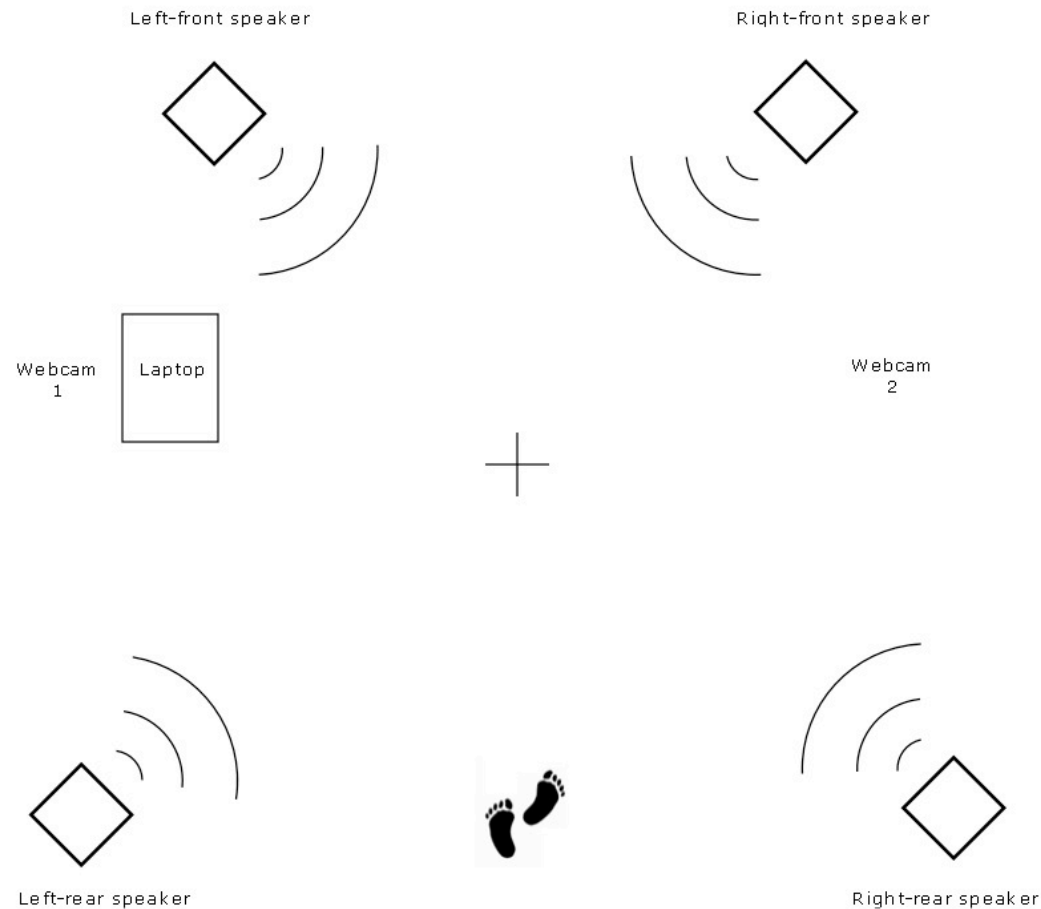
SMILE- You're on CCTV

a sound installation by Cheong Li

version 1.1



## Floor Plan



## Instructions

Playground is about using motion tracking to control sound, its tone colour and trajectory in space.

Walk around, move your body and hands in front of the webcams in the room. On the screen of the laptop, you would see yourself with a rectangular box indicating your position. As you move your body, you would also move the box on the screen and hear how the sound moves around you in the four-speaker arrays. The X and Y co-ordinates of the box correspond to position of the sound in the space. Enjoy!

## Notes

The basic idea of the piece is based on how movements can be used to generate sound. Motions are tracked by webcam and then analyzed by Max/MSP/Jitter to generate MIDI data. The computer then creates random pitches in different scales (chromatic / pentatonic / octatonic / hexatonic) and triggers sound samples of various metallic percussion.

In this 1.3 version, although the concept is basically the same, I've rewritten the patch in Max/MSP/Jitter, using cv.jit objects for motion tracking, developed by Jean-Marc Pelletier,<sup>1</sup> and ICST tools for ambisonics panning.<sup>2</sup> Although my setup is simply for four speakers, the ambisonics panning tools are convenient for distributing sound in space with any number of speakers.

Max / MSP detects a region on the webcam that is in high contrast to the other part of the screen, and identifies it with a box. So

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<sup>1</sup> Pelletier, 'cv.jit – computer vision for jitter' <<http://jmpelletier.com/cvjit/>>

<sup>2</sup> Institute for Computer Music and Sound Technology, 'ICST tools for MaxMSP' <<http://www.icst.net/research/>>

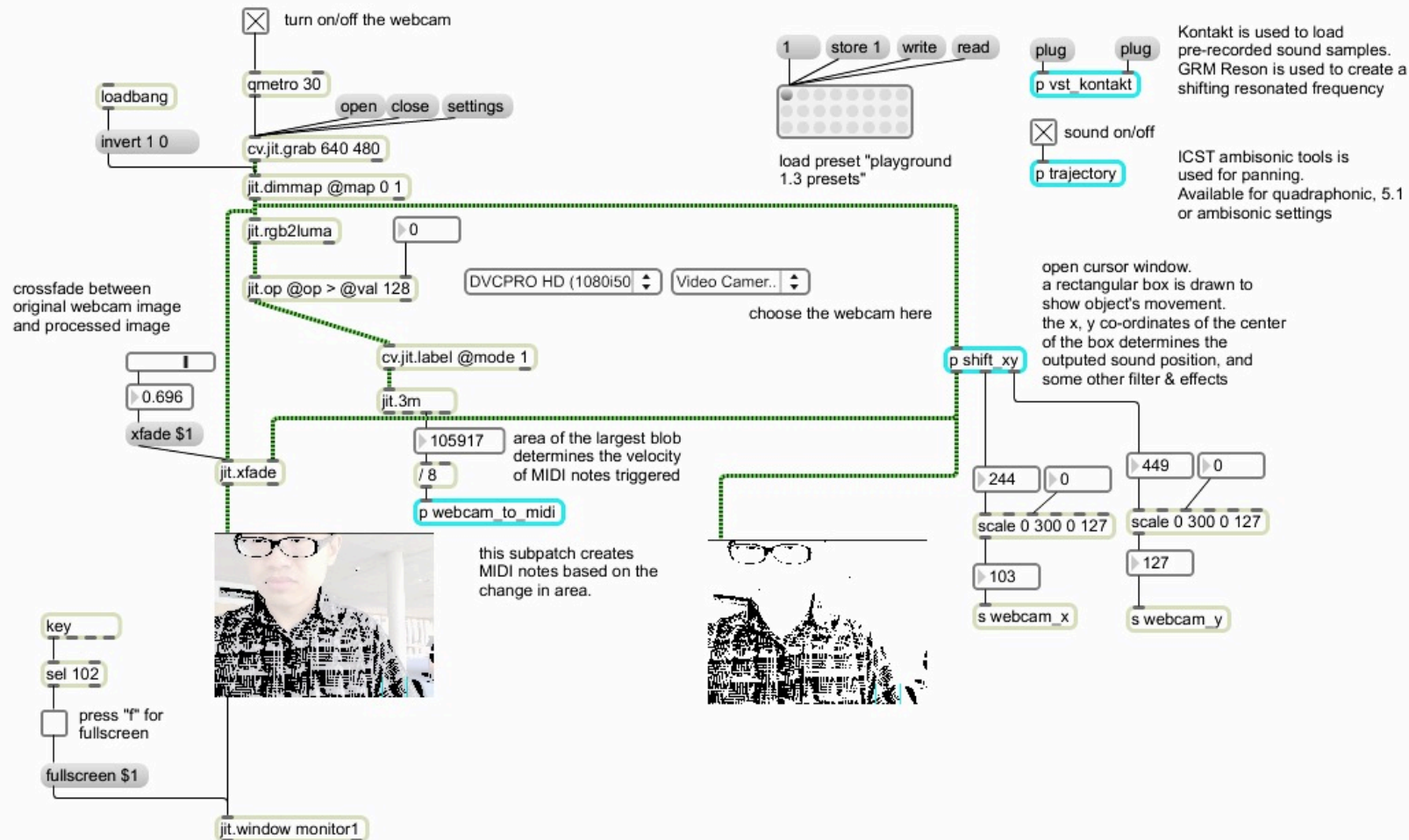
when someone moves his hands in front of the webcam, he moves the box shown on the screen. The X and Y coordinates of the box are then used as an indication of where the sound would be produced, so that the sound moves in the space as the person moves his hand. As one moves closer or further away from the webcam, the size of the box on the screen also changes, which controls the volume of the sound produced. I used Kontakt, loading pre-recorded sounds of Tibetan singing bowl and temple bells. As X and Y coordinates change, the pitch changes as well. Thus an interesting sound is created and travels around the space.

In this sound installation, I tried to find a correlation between sound and space. Normally, in a concert environment, the audience cannot control where the sound source is. In this sound installation, the participants can use hand gestures to control music as well as its position in the space.

Max/MSP/Jitter patch for Playground is included in the data CD.

## Playground 1.3

Patch created by Cheong Li; Last modified: 12 May 2012  
based on cv.jit objects and ICST ambisonic tools, both can be  
downloaded from their websites and installed as extensions in MaxMSP.



1

- ☐ Enable webcam xy control
- ☐ Enable elevation

p webcam\_trajectory

p trajectory\_xyz

## Trajectory

This patch is based on ambisonic objects by ICST Institute for Computer Music and Sound Technology, Zurich University of the Arts. Copyright © 2008 -2011 by Jan Schacher <http://www.icst.net/>

trajectory of the 4 channels, which can be either controlled by webcam object position, or by generated trajectory

stereo separation

60.

1. 2.

source position

azimuth

elevation

distance

p trajectory\_gen1

0.

0.

0.

2.0

2.0

2.0

286.800

56.7000

0.15527

6.0

8.0

11.0

227.314

5.6

0.3944

7.0

9.0

10.0

p trajectory\_aed

receive~ c1

receive~ c2

1 0 open, loop 1, 1

sfplay~ 2

\*~ 0.5

\*~ 0.5

\*~ 0.5

\*~ 0.5

ambiencode~ 3 4

ambidecode~ 3 4

dac~ 1 2 3 4 5 6 7 8

0.2 0.2 0.01 0.01

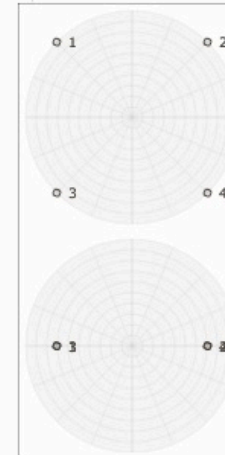
adjust volume of the 4 channels



p set\_speakers\_hex p hex\_output\_map  
 p set\_speakers\_oct p oct\_output\_map  
 p set\_speakers\_quad p quad\_output\_map  
 p set\_speakers\_rymers\_ambi p tjs\_output\_map  
 p set\_speakers\_rvw5.1 p rvw5.1\_output\_map  
 p set\_speakers\_rvw\_ambi p rvw\_ambi\_output\_map  
 p set\_speakers\_tjs\_ambi p tjs\_output\_map

### set speaker positions

1. hexagonal (3 speakers on top, 3 on floor)
2. octagonal (at the 8 corners of a cube)
3. quadraphonic (square on the same level)
4. Rymers Auditorium ambisonics rig
5. RVW Studio 5.1 setup
6. Trevor Jones Studio ambisonics rig



store 1 1 write read