

Audio Synthesis using Pose Estimation

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A musical instrument in which the user controls audio parameters through body gestures. Integrating the PoseNet pose estimation library with the SuperCollider audio synthesis environment. OSC, Node.js and WebSockets are used as networking tools. Basic functionality requires only a webcam and some free software.

Prerequisites

- A webcam.
- An unrestricted wi-fi network capable of udp connection.

Installation

- Install Node [here](#) if not installed.
Version 10.16.0 was used in the project.
- Install SuperCollider [here](#) if not installed
Version 3.10 was used in this project.
- OSCHook free Android app for OSC control from mobile phone
Download [here](#).

Node.js

1. Navigate to project folder in terminal.
2. If `node_modules` folder is absent or empty:
 - Type: `npm install`
 - Allow dependencies to install
3. Type: `node audio-pose`

Google Chrome

1. Open web browser.
2. Navigate to 127.0.0.1:8080 (or localhost:8080)

SuperCollider

Navigate to sc folder in project folder.

Open one of five sketches:

- **1-nose-synth**
A synth controlled by nose position.
X axis controls pitch.
Y axis controls volume.
- **2-theremin**
Left hand controls pitch along the X axis.
Right hand controls volume along Y axis.
- **3-gran**
A granular synthesiser.
Distance between hands affects parameters of granularised audio.
- **4-playbuff-distance**
Closeness of the face to the webcam affects playback speed of audio.
- **5-playbuff-phone**
Tilt of mobile phone affects playback speed of audio.
Start with phone flat and tilt forward and back.
Requires installation of free OSCHook app.
Node server must be quit

For each SuperCollider sketch:

- Lower your computer system volume.
- Evaluate s.boot; using *Cmd-Return/Ctrl-Enter*.
- Evaluate all OSCDef blocks (within parenthesis).
- Evaluate synth block (within parenthesis).
- When finished, free all processes using *Cmd-./Ctrl-*.
- Evaluate s.quit; after every file to clear the server nodes.