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Scripting Web Apps for Music Theory using SVG & Web Audio API

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Abstract

Scalable Vector Graphics (SVG) and Web Audio API are two powerful web-browser technologies that may be used to create interactive web apps for music theory. This paper discusses a JavaScript web app for geometrical music theory that employs SVG and Web Audio API. The app generates an interactive 12-tone equal tempered pitch-class clockface diagram, a traditional model for pitch-class space in post-tonal theory, that uses SVG to display all possible polygon diagrams and Web Audio API to play a given polygon's associated chord and rhythmic timeline.

More information is available online at:

reginaldbain.com

PC Polygon Assistant

PC Polygon Assistant

0 1 2 3 4 5 6 7 8 9 10 11

Reset T-1 T+1 I C Play Axis: On

PC set: {0,2,4,6,8,10}

Normal form: [0,2,4,6,8,10]

Prime form: (02468T)

Forte name: 6-35
DOS: 6,6

IC vector: 060603

CINT1: 2-2-2-2-2-2

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Tools

- **Scalable Vector Graphics (SVG)**
A markup language for 2D graphics applications and images
W3C: <<http://www.w3.org/Graphics/SVG/>>
- **Web Audio API**
A high-level JavaScript API for processing and synthesizing audio in the browser
<<http://www.w3.org/TR/webaudio/>>
Web Audio Working Group: <<http://www.w3.org/2011/audio/>>
- **jQuery Mobile**: A touch-optimized Web framework
<<http://jquerymobile.com>>
- **jQuery**: A JavaScript library that makes event handling, animation, etc. simpler
<<http://jquery.com>>
- **Tone.js** by Yotam Mann
A web audio framework for making interactive music in the browser
<<http://github.com/Tonejs/Tone.js>>
- **Tune.js** by Andrew Bernstein & Ben Taylor
A web audio tuning library of microtonal and just intonation scales
<<http://github.com/abbernie/tune>>
- **NexusUI** by the LSU Experimental Music and Digital Media Program
A JavaScript toolkit of HTML5 audio interfaces in the browser
<<http://www.nexusosc.com>>
- **MAMP: My Apache - MySQL – PHP**: A localhost server for OS X & Windows
<<http://www.mamp.info>>

Documentation and Tutorials

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