Luck Dragon Talk

Michael Gogins

http://michaelgogins.tumblr.com

Irreducible Productions
New York

27 October 2023

Outline

I will talk about my way of doing algorithmic composition. Almost all my pieces use Csound for synthesis, but I use it with other languages for score generation, including Python, C++, Lua, Lisp, JavaScript, and recently Strudel in cloud-5, which I will demonstrate. There are hyperlinks in these slides to external resources.

1. About Me

2. cloud-5

3. Getting Started

4. Tape Music

About Me

- I was born in 1950 in Salt Lake City. I've lived in Minneapolis, Sonoma County, LA, Seattle, and NYC.
- My wife Heidi and I own a farm in Bovina, and we keep a co-op on the Upper West Side.
- While getting my BA in comparative religion at the University of Washington, I studied computer music with John Rahn.
- Computer music gradually but completely took over. I programmed trading systems as a day job.
- *Note well*: I was never either an academic or, after a few years in LA, a performing musician.
- More about me here.

cloud-5

- cloud-5 is my system/toolkit for making *real computer music entirely in the HTML5 environment*.
- That is, all cloud-5 pieces run (sometimes forever!) in an ordinary Web browser, and they have *no* external dependencies.
- Pieces are hosted either on a regular Web server on the Internet, or on a local Web server.
- *Only* limitation: Pieces can't read or write on the filesystem.
- cloud-5 includes WebAssembly builds of Csound and my algorithmic composition system CsoundAC that works with chord spaces, the live coding system Strudel, and some standard JavaScript libraries – all packaged in the cloud-5 release.
- I will now perform *Cancycle*.

Getting Started with cloud-5

1. Download cloud-5.zip from GitHub, in the *Assets* menu, bottom of page.

2. Unzip cloud-5.zip on your computer.

3. In a terminal, change to the cloud-5/cloud-5 directory and run a Web server, e.g.: python3 -m http.server.

4. Open a Web browser to http://localhost:8000 and play a sample piece.

5. If you write a new piece, adapt an existing piece using a text editor; save it in the cloud-5/cloud-5 directory.

6. Use the browser's developer tools to debug the piece.

7. You may need to clear the browser caches and do a hard refresh to see changes that you make.

Tape Music I

- In the mists of time – before computers, before even the Moog synthesizer – there was *electronic music*.

- It was composed by splicing together snippets of recording tape. It could be musique concrète à la Pierre Schaeffer, or Stockhausen-type music made with oscillators and filters.

- Even now that tape recorders are vanishing back into the mists, music made using technology to create a sound recording for playback is still sometimes called *tape music*.

- Most of my pieces are, in fact, tape music, *because that gives the composer the greatest power*. In theory, no mistake goes unfixed, and no possible improvement is not found. Of course, this all takes absolutely forever....

Tape Music II

- I use all the same software for tape music pieces that I use in cloud-5... but I also:
- Read and write soundfiles (and other files).
- Use sample banks.
- Use Csound plugins from Risset and csound-externals.
- Use VST3 plugins.
- Embed HTML and JavaScript in my pieces.
- Even embed C++ code in my pieces.

Tape Music Iii

- Some finished works:
  - On YouTube, e.g. *Two Dualities*, operations in chord space.
    Source code here.
  - On Amazon Music, e.g. *csound-2005-03-06–03.38.19.py*,
    In C meets *Musikalisches Würfelspiel*. Source code here.
    By the way, the source code for most of my software and
    many of my compositions is available in one or another of
    me repositories on GitHub.

Questions?

Resources I

📕 Michael Gogins, blog.

📕 Michael Gogins. "Computer Music Resources."

📕 Clifton Callender, Ian Quinn, and Dmitri Tymoczko. "Generalized voice-leading spaces." *Science*, 320:346–348, 2008.

📕 Michael Gogins. "How I Became Obsessed with Finding a Mandelbrot Set for Sounds," **News of Music** **13**:129-139.

📕 T.M. Fiore and R. Satyendra. "Generalized Contextual Groups." *Music Theory Online*, 11(3), 2005.

Resources II

📕 Michael Gogins. "Score generation in voice-leading and chord spaces." In Georg Essl and Ichiro Fujinaga, editors, *Proceedings of the 2006 International Computer Music Conference*, San Francisco, California, 2006. International Computer Music Association.

📕 Dmitri Tymoczko. "The Geometry of Musical Chords." *Science*, 313:72–74, 2006.