Luck Dragon Talk

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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++, Lisp, JavaScript, and recently Strudel in cloud-5, which I will demonstrate. There are hyperlinks in these slides to external resources.

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.
- Some finished works:
  - On YouTube, e.g. *Two Dualities*, operations in chord space.
  - On Amazon Music, e.g. *csound-2005-03-06–03.38.19.py*, *In C* meets *Musikalisches Würfelspiel*.

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.