

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++, 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 my 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.