Paul Hudak Symposium Listening Room
Compositions by Donya Quick

About the Music

Paul Hudak was my PhD advisor as well as a mentor and great source of inspiration. One of the most important things I learned from him is that computers can truly sound beautiful. Prior to taking Paul's algorithmic composition course during my first term at Yale in 2008, I'd had very little exposure to the world of computer music and virtual instrument design, and what little I had heard before then was quite simplistic and largely unpleasant. Paul showed me that harsh, unstructured sounds are really only the beginning of a vast number of possibilities to be explored. Through this selection of pieces, I hope to convey some of what I learned about computers, programming languages, and the construction of algorithmic music during my time working with Paul: computers and carefully-crafted programming languages represent an amazing extension to the human capacity for creativity, even allowing machines to internalize some of that artistry in their own way.

Pieces in this program were produced using various combinations of two Haskell libraries, Euterpea and Kulitta, and the equipment within the Euterpea Studio. Paul established the Euterpea Studio, named for his Euterpea library for working with music in Haskell, to foster computer music development and research. Kulitta was the subject of my dissertation and is still a focus of ongoing work, mingling ideas from computational linguistics, functional programming, machine learning, and music theory to create novel pieces of music from scratch. Kulitta also uses Euterpea for representation of certain musical concepts.

Program

This program will repeat approximately every 30 minutes. Titles are shown before each piece starts.

1. Poem for a Sine Wave (4:08) – created entirely from sine waves using Euterpea's signal-processing framework. The structure of some portions was generated by a very early version of Kulitta.

2. Fantasy for Bottles (5:54) – a composition for an orchestra of tuned glass bottles. This piece was composed in a digital score editor using virtual instruments built from Euterpea-made samples.

3. Vesicularia (4:38) – an algorithmic composition using Kulitta. To create each section, phrases generated by Kulitta were streamed as MIDI through analog and digital synthesizers with physical parameter manipulation in real time.

4. From a Dream (6:25) – created using piano and granular synthesis, a method of recombining small fragments of sound into new waveforms that can sound drastically different from the original sources. Source recordings were made using equipment in the Euterpea Studio.

5. Tourmaline (9:22) – an algorithmic composition created with Kulitta. Phrases generated by Kulitta were assembled into larger patterns and rendered to audio using complex digital synthesizers. There are three main sections or "movements," each with a distinct texture and character.

More Information

More information about the Euterpea library: `euterpea.com`
More information about the Kulitta library: `donyaquick.com/kulitta`
Online versions of compositions presented today: `soundcloud.com/donyaquick/`

All visualizations for the compositions shown today were produced using Magic Music Visuals, a graphical programming interface for visualizing audio streams.