Interactive Sonic Arts
Etude 01
Kieran Maraj

For this etude I attempted to create a piece in the style of the Mark Fell and Gabor Lazar album The Neurobiology of Moral Decision Making. Ultimately I think the piece ended up more similar to the song Core by Emptyset.

Fell and Lazar's work is sparse in terms of elements, while remaining sonically dense. To my ears, it sounds like there is some central process that generates triggers, and the same set of triggers is sent out to Fell's drum machine and to Lazar's - I believe additive - synthesizer. There seems to be an additional process that uses the rhythmic triggers as input to drive the pitch selection on Lazar's end. The central process loops patterns, but modulates and morphs them metrically in unexpected and off-kilter ways, generating rhythms reminiscent of Chicago footwork.

To emulate this I first set up three 'voices' of audio. First was a simple kick drum using a cycle object for the body of the sound and a randomized multichannel cycle, an attempt to emulate noise, for the click of the kick. The other two voices are copies of the simpleFM patch that have multichannel-ified, each with 16 channels of audio. I opted for FM over additive simply because I've been meaning to try a multichannel FM synth for some time. From there, I built the central rhythm generator using a metro a series of simple counters and selects. The counting system allows me to set a bar length, phrase length, and keep track of pulses. The pluses in a bar are counted and the select sends out triggers on certain beats of the bar. Every x number of phrases, the beats that are triggered are swapped. This allows for the generation of different looping, modulatable patterns with just a few control inputs. Triggers are sent to each of the voices, with some additional logic on the FM voices to set pitch, randomize the harmonicity values, and some delay-based timers to execute volume fades and provide an overall structure to the piece.

If I had more time, one of the main things I would like to dig into is the multichannel function object. It allows for many individual envelopes to be applied across a multichannel audio signal. I found this was a nice way to create subtle variations in amplitude and harmonicity envelopes. What I would really like to be able to do with the object though, is to set one envelope and then computationally generate variations of that envelope over each of the functions channels. Additionally, if I had more time, I would apply more dynamic processing to the output of the system (like filters, amplitude modulation, etc) in an attempt to capture more of the driving intensity found in the Emptyset piece.