

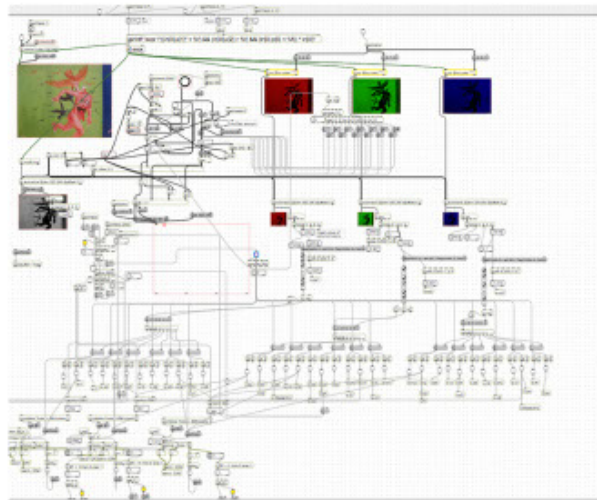
**“Blue is the Frequency..” or Meditations on a single demon**  
by Max Eilbacher

After a long break from working with digital synthesis this fall/winter, I decided to build an additive synthesizer based around a feedback matrix of four oscillators. I was looking to poetic and visual images for inspiration when creating this synthesizer and letting the synthesizer run for long periods of time. I wanted to incorporate the images I was saturated in at the time into the synthesizer. My solution was to create a system that would let the image itself play and modulate the synthesizer. An image would act in my place for making decisions.

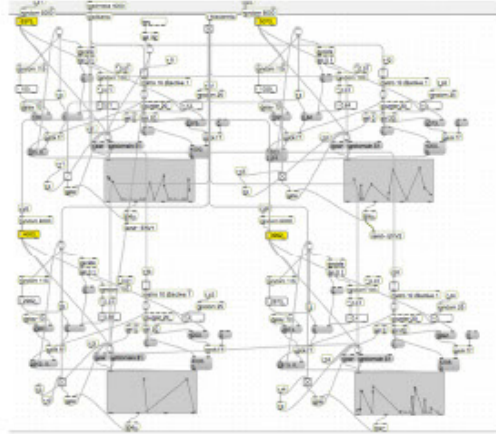
I decided to use a photograph of a Buddhist demon, painted on the wall of a Temple in Burma, for the seed of the algorithmic piece .



The image is loaded into a Max/MSP patch, where each cell of the image is scanned left to right for its red, blue, and green (RGB) color information. The RGB information of each discrete cell of the image is then separated into three numerical values. These values are converted into a string of binary numbers, which are fed into a series of simple logic gates and triggers.



The RGB-driven logic gate/trigger system drives the cross-coupled digital feedback synthesizer in Max. The binary numbers derived from the image of the demon decide all the parameters of the additive synthesis engine; carrier frequency, harmonic ratio, modulation indices and scaling. In addition to the image controlling all aspects of synthesis, a series of complex envelope generators control the amplitude of the CFFM (Cross Feedback Frequency Modulation) synth. These envelopes are also controlled and modulated by the image's RGB content.



While cleaning the inside of my aluminum electric kettle, I was surprised to find that large calcium deposits had built up inside. After careful excavation, I had several extremely thin calcium sheets, which I closed mic'd rubbing against each other and being crushed and dragged. Once the sheets were broken down to a smaller size, I recorded a few hundred instances of single, miniscule pieces of calcium being dropped repetitively.

To add more space and different timbral content to the generative piece, I added my library of field recordings into the patch's player/scanner algorithm. At the beginning and end of each cell scan, the binary strings randomly choose from the calcium library. These small sounds serve to connect the cells of the image sonically and subtly break up the synthesizer's sonic transitions. Built into the algorithm, as the scanner progresses through the image, the calcium's recording's pitch and amplitude is slowly manipulated.

