

## Assignment 3: Creative Approaches with Max External

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In this assignment I made a generative compositional tool. I wanted to create something that would allow me to perform with generative techniques, but with enough flexibility to give myself some degree of creative freedom with each performance.

My initial plans were perhaps over ambitious. I had intended to make an external that was capable of generating rules based melodies, with euclidean rhythms, which would be played used a built in three oscillator synthesizer. I was able to get a very primitive synthesizer to work independently of the generative structure. However, I kept running into problems when trying to combine the two systems into one external. I have included the synthesizer, though on it's own, it doesn't serve any purpose beyond the built in Max MSP objects. This led to an ineffective use of time, which unfortunately could have been spent on more productive endeavours. I would really liked to have built a working Karplus Strong model within Java, but was also unsuccessful in my attempts, though that will be something I will continue to work on outside of this project.

Ultimately, I have made an external that generates melodies, using the Johnsonizer rule based structure, and outputs them in a euclidean rhythm. This started out as a combination of the two tutorials that I followed, though I have implemented several extra features for ease of use, and I interfaced the two systems in an effective and interesting way. I have added features for key, so that the melody patterns will always be in same key, also allowing the user to pick which key the piece is played in. I also implemented a simple midi conversion, so that the external outputs the melody as midi values. Ideally, I wanted all of the member functions to be private, which I think would simplify the user experience within the Max environment, though I had problems with passing data from the inlets to the argument of the private function. I was successful with the euclidean rhythm functions, and subsequently, all you have to do to control the rhythm of the external is pass in the integers for beats and pulses. However, the Johnsonizer patterns do not take integers, and I was slightly confused about using arrays of atoms as the arguments of the functions.

For this performance I have used several Karplus Strong models, and a reverb effect. Musically, my intention was to create something simple, but with some degree of sonic complexity. I really like using generative patterns, and I think as the different patterns are layered over each other they create an interesting, engaging and slightly hypnotic sound. I'm always drawn towards using string models, as I personally like traditional Asian music, and this is reminiscent of that. When I decided to use the reverb, I realised I could have tried to use an adaption of the delay external we had made. However at this point, it was too late for me to make a working model, though in future, I would like to try and make my own reverb, perhaps using convolution. I think the reverb brings this performance together. It allows the

frequencies to resonate and interact with each other in interesting ways. Again, at the very end of the project, I tried to implement a very simple control system for the reverb with my external, though I didn't end up using it. I would like to spend more time researching Perlin noise in Java, as I think it could add a lot to the piece, though I didn't give myself enough time to properly research and understand its implementation in Java.

In conclusion, I have genuinely enjoyed this assignment. I have enjoyed working in Java, and improving my procedural programming skills. It has been interesting to learn how to work with DSP too. In all honesty, I feel slightly disappointed with myself, and with my final piece. I was very enthusiastic at the start of this term, and I did a lot of work outside of the class, though towards the end of this assignment I have not spent the time I needed to in order to take this project to the next level. I know I could have produced something better than this, and I feel I have learnt from some of the mistakes and errors I have faced in this project. I will definitely continue to use externals in my future Max projects.