Mel Aise

genericpb@gmail.com // https://github.com/extrasharp

projects

maru // OpenGL video creation framework // https://github.com/extrasharp/maru

maru is an OpenGL-based live coding environment for motion graphics. The backend is written in C++ and Chicken Scheme is used as a scripting language. My first video made with an older version of the software can be found here: https://www.youtube.com/watch?v=loHvrW5EKBk

maru uses a more C style API with some global variables on the backend, and casual, easy to remember function names on the frontend. The goal is to allow the artist to create quickly, without being bogged down by technical details.

Using the API in a live setting is an important design consideration; error handling has to be forgiving and robust. maru handles this by reporting errors to the console, and evading crashing as best as possible.

maru implements thin wrappers over the underlying OpenGL interface. This allows for intimate control of what's going on, without sacrificing niceties from C++ and Scheme. From a development point of view, this allows the programmer to implement new features more quickly, not having to heavily refactor existing code to make new ideas fit in.

uokichi // AVR assembler // https://github.com/extrasharp/uokichi

uokichi is a Common Lisp based assembler for AVR chips. The code is able to generate hex files and upload them via a custom built uploader.

uokichi uses Lisp as a sort of macro-assembler, rather than implementing a full language. This allows for the syntactical freedom of Lisp and the low-level memory manipulation of an assembly language. uokichi features some of the amenities from higher level languages such as C and Rust as well.

The code was written with scalability in mind. It should work with all AVR chips and many PIC chips as well. Adding support for another architecture is trivial.

Although plenty of assemblers already exist for these chips, this project is mostly an exercise in scouring datasheets and working with embedded systems. In the future, uokichi will be able to generate hex files more accurate to the IBM format so these could be uploaded via the official AVR uploader.

other information

I'm self-taught in programming and digital electronics. I love exploring new languages and programming paradigms. The languages I use the most are C/C++ and Lisp, and I have a fair amount of Lua experience.

I attended the Recurse Center Winter 2017 batch. This was a great chance to meet other programmers. I practiced public speaking and pair programming, learned functional programming concepts, and deepened my understanding of data structures and algorithms.