INTRODUCTION

I work lately primarily with cellular automata (both continuous and discrete) and symmetric cryptosystems. I think of the algorithms themselves as art (or perhaps as industrial design), and I often use the algorithms to create art in the more typical sense. This pdf is something like a directory to my current, featured projects. I provide a link to more information and source code at the bottom of each entry.

Thorium

This symmetric cryptosystem uses a square matrix of bits as a key. The rows and columns are "circular shifted," so that the matrix is topologically a torus (not exactly but *somewhat* like Rubik's Cube.) **Cesium**, just below, includes **Thorium** as a special case, but I keep **Thorium** separate because I hope to implement it in assembly, and the base 2 version came first.

`https://k0ntinuum.github.io/thorium-C/`

Cesium

This system is generalization of **Thorium** to an arbitrary base. It's easy to just use base 27 (the alphabet and an underscore), so that one can exchange messages in right away in English. I hope to write up a version in Javascript so that I can provide the encoder on a static website for actual use. I teach math, and I'd like to give my students an example of a complex but still invertible function.

`https://k0ntinuum.github.io/cesium-C/`

Cone

This symmetric cryptosystem is based on a triangular implementation of a ternary elementary cellular automata. The key is 27 ternary symbols which represent a rule for a ternary cellular automaton with a neighborhood size of 3. The rule is then also used as a seed (along with a symbol of plaintext) in order to get the ciphertext symbol.

`https://k0ntinuum.github.io/cone-C/`