Ben Kunkle

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Skills

Software Tools: vim Git Linux **Languages:** Python Rust Java C Lua

Projects

Ant Simulation *Personal Project* | https://nebsite.website/ant_sim/ant_sim.html

Skills Algorithms, Rust, Game Dev, Simulation, Research

Description Simulating date retreival in peer-to-peer (P2P) networks with a system inspired by ants

- Conducted research on P2P networks inspired by ant pheromone systems and Developed a simulation for displaying one of the algorithms.
- Created a comprehensive report documenting the research and design process, including a live demonstration of the program using WebAssembly

Wave Function Collapse *Personal Project*

Skills Algorithms, Adaptability, Haskell, Rust

Description Implementation of the constraint based bitmap generation algorithm Wave Function Collapse created by Maxim Gumin

- First I deceided to implement the algorithm in Haskell which I discovered around the same time. I faced difficulties, however, with premature optimization, overengineering, and debugging due to Haskell's inflexibility with side effects and lazy evaluation model. I rewrote it in Rust in an attempt to gain new perspective
- I was new to Rust, however, and in trying to explore the type system's abstraction capabilities I created too much coupling. This made the new implementation difficult to work with leading to a third rewrite which lead to a third rewrite that ended up being successful

Smaller Projects *Personal Projects*

Skills Solving Problems, Exploring/Experimenting

Description My hope in including these is to demonstrate that I love working as well as playing with computers and look for excuses to do so

Goclone A cli tool I made that uses rclone to handle backing up files to Dropbox as the Dropbox client was draining too much of my battery

Resume This resume was generated by inserting the contents of a toml file into a LaTeX template using jinja2. I created this system to separate formatting and content. It allows me to iterate quickly and simplifies the process of updating and creating new versions.

Systems Programming My favorite course I've ever taken. Each project was written from scratch in C, including a word frequency counter that could process 1 million words in 7ms using a trie, Huffman encoding/decoding, and simplified versions of GNU Tar, Talk, and Uniq

Millipyde *Research Project* | https://digitalcommons.calpoly.edu/theses/2374/

Skills Team Work, Collaboration

Description A project I recently became involved with working on a tool that adds datatypes for gpu backed arrays and images to Python

Education

California State Polytechnic University

Pursuing Bachelor of Science Degree in Computer Science - Sept 2021 to present

Notable Completed Courses Data Structures, Computer Architecture, Systems Programming, Discrete Structures