Avery Burke

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EXPERIENCE

Recurse Center, Participant— *May 2023 - September 2023*

Learned C

- Completed 90% of the exercises in Kernighan and Ritchie's *The C Programming Language.*
- Contributing to an ongoing project to write a DNS resolver in C.

SICP

- Completed 75% of the exercises in Sussman and Abelson's *Structure and Interpretation of Computer Programs.*

Learned WebGPU

- Built a WebGPU-based Game of Life in React, enabling users to change board size (256 cells to 1M+), simulation speed, and cell states via intuitive interactions. Review the code.
- Wrote an algorithm for generating a Voronoi mesh of 1000+ cells, over a convex polygon, using compute shaders. Review the code.

Trial Trace, Lead Developer— *March 2020 - May 2023*

Web Application Design and Development

- Architected backend and frontend state management and designed UI for a data visualization web app serving biotech experts.
- Designed and implemented user authorization hierarchy, allowing user admins to delegate sharing and authoring privileges to team members.
- Implemented backend in Rails and 3LO with Google for seamless data syncing from Google Sheets; streamlining visualization and data analysis for users.
- Gained expertise in TypesScript, React and d3.js to implement frontend; allowing users to generate pixel-perfect visualizations and reducing boardroom presentation prep time by 2 hours.

Team Leadership

- Built 90% of the app, as the sole developer, focusing on prototyping, testing, deploying and responding to user needs.
- Managed a team of 3, as lead developer, and coordinated development pipeline and sprint planning with senior management; accelerating response time to ticket items by 30% and mentoring teammates.

Optimization

- Learned WebGL to optimize a critical algorithm, resulting in a 10x reduction in computation time for processing large data sets.
- Engineered a custom canvas target for d3.js, enabling smooth animation with minimal latency for up to 500 data points, improving user experience and enhancing data visualization capabilities.

Trial Trace Demo

First Principles Advisory, Contractor — *July 2018 - March 2020*

Data Visualizations for Biotech Analysts

- Learned d3.js and JavaScript to develop a framework for automatically rendering data visualizations, saving analysts 2 hours of creation time, per visualization.

PROJECTS

Pie: Interactive and customizable data visualization of users in an imaginary database. View the code.

EDUCATION

San Jose State University– San Jose, CA
Bachelor of Arts, Philosophy, May 2008
San Jose State University– San Jose, CA
Bachelor of Arts, Mathematics, May 2008