Hal Hoffmeyer

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EDUCATION

University of Michigan | Computer Science Major | 4.0/4.0 GPA August 2024 — May 2027
Coursework: Programming and Introductory Data Structures (A), Multivariable and Vector Calculus (A+), Differential Equations (A+), Discrete Math (IP), Applied Linear Algebra (IP), Honors Introduction to Statistics and Data Analysis (IP)
Awards: William J. Branstrom Freshman Prize awarded to the top 5% of the Freshman class

EXPERIENCE

Front-end Developer | VOID Tech Club: Next.js, React, TypeScript, Tailwind, Vercel, AWS September 2024 – Present

- Developing a reliable web app using Next.js for front-end development, AWS S3 for file management, and Vercel for a database, to showcase music for a documentary.
- Led developer meetings to implement NextAuth for our web app's login page.

PROJECTS

LaTeX Generator | *React, TypeScript, Tailwind* January 2025

- Developed a dynamic React-based matrix LaTeX generator designed for linear algebra students, enabling users to interactively modify matrix dimensions, input values, and generate code using state management and components to enhance functionality.

Minesweeper | *React, TypeScript, Tailwind* December 2024

- Engineered a fully responsive Minesweeper game using React and TypeScript, implementing efficient state management with hooks and dynamic grid rendering for scalable layouts.
- Developed complex game logic, including recursive flood-fill algorithms, mine placement validation, and adjacency calculations, ensuring accurate and varied gameplay.
- Optimized UI performance and interactivity by leveraging modern CSS (grid, flexbox), real-time state updates, and keyboard event listeners for a seamless user experience.

Pong Clock | *C, OpenGL, GLFW* December 2024

- Developed a self-playing Pong game in C that displays the current time, implementing a seven-segment display, ball and paddle movement, collision detection, and trajectory calculation.
- Managed rendering with GLFW and OpenGL and game logic with an accurate timer.

Snake | *JavaScript, HTML/CSS* October 2024

- Developed an interactive Snake game using JavaScript and HTML. Implemented user input handling, state management, and custom asset loading.
- Engineered efficient game logic for object spawning, movement, and collision validation, ensuring objects never overlap with the snake or each other while dynamically adapting to the player's progress.
- Optimized performance and scalability by utilizing HiDPI canvas rendering, custom image preloading, and event-driven architecture, enabling smooth animations and enhanced visual fidelity across different devices.

Graphing Calculator | *JavaScript, HTML/CSS* September 2024

- Designed a mathematical evaluator and graphing tool using JavaScript and HTML to generate plots of functions.
- Evaluates expressions using stacks for operators and values to ensure correct operator precedence.

LEADERSHIP

Kumon: June 2023 — August 2024

- Kumon is an after-school learning program that teaches younger students math and reading skills. I guided students through their math and reading work and graded homework.

Languages: C/C++, Python, Java, JavaScript/TypeScript, HTML/CSS, R
Tools: React, Git, Vim, Tailwind, Next.js, Vercel, Makefile, VS Code, IntelliJ
Certifications: N3 Japanese Language Proficiency Test