Maxwell Tang

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Education

University of Massachusetts Amherst — Amherst, MA

Bachelor of Science in Computer Science and Math | GPA: 4.00 — *Sep. 2022 – May 2026*

Relevant Coursework: Compiler Techniques, Machine Learning, Operating Systems, Quantum Information Science, Web Programming, Computer Networks, Algorithms for Data Science

Experience

PTC — Jun 2023 – Aug 2024

Software Developer — *Boston, MA*

- Designed Puppeteer-based automated regression testing framework covering over 100 user stories
- Created Nuxt Module for testing and viewing Vue components in an isolated environment
- Designed flexible content schemas for Sanity.io and implemented intuitive component renderer using Nuxt.js
- Implemented downtime handler for user data pipeline using Firebase, replacing manual recovery process
- Created automated code generation tool using ESTree and tree-sitter, speeding up migration process

BUILD UMass — Feb 2024 – May 2024

Software Developer — *Amherst, MA*

- Implemented seamless authentication system using Google Cloud Services, allowing users to securely edit articles
- Collaborated with team to design and deliver intuitive, user-friendly pages using Figma and React.js
- Designed an efficient article ranking algorithm with intuitive customer-definable parameters

Projects

Electromagnetism Simulation | *WebGL2, ES6 JavaScript, GLES 3.0*

- Built GPU-accelerated electromagnetism simulation engine from the ground up using WebGL2
- Designed custom FDTD solver with Crank-Nicholson integration, ensuring efficient and accurate wave simulations
- Implemented diverse palette of customization options including time step size, resolution, boundary conditions, conductivity, permittivity, permeability, dopant concentration, and band-bending intensity
- Implemented ability to save and load snapshots of simulation in compact, PNG-based format

RISC-V JS | *ES6 JavaScript*

- Built in-browser RISC-V CPU emulator over the course of 36 hours in collaboration with 4 teammates
- Developed a custom linker program in JavaScript capable of loading ELF files into emulator
- Implemented custom Control/Status Registers(CSRs) for serial communication with browser client
- Won prize for Best Software Hack and Best Cybersecurity Hack at HackUMass XI

Bad Apple in Google Calendar | *Node.js, Google Cloud API*

- Created script for rendering videos in Google Calendar using Google Cloud API
- Designed Custom algorithm for improving rendering efficiency, beating out naive implmentation by over 10x
- Continued work independently, improving efficienty by 100% using simulated annealing and greedy optimization
- Won prize for Cutest Hack at Hack(H)er413

Arduino OS | *AVR Assembly, C, GNU Compiler Suite*

- Created proof-of-concept preemtive multitasking operating system for the Arduino Uno chipset
- Designed shell program from the ground up that communicates with host computer using UART port

Technical Skills

Languages: Rust, TypeScript, JavaScript, Bash, Python, Java, C, C++, RISC-V Assembly, SQL
Technologies: React.js, Vue.js, Express.js, PyTorch, Node.js, Firebase, Google Cloud Services, OpenGL
Concepts: Compilers, Operating Systems, Machine Learning