Zachary P Gunther

Software Engineering | 19zgunther@gmail.com | +1 (207) 491-7291 | San Francisco, CA
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Education

Rensselaer Polytechnic Institute Troy, NY | August 2019 - May 2023

- Bachelor's of Computer Science & Computer Engineering Dual Major, 3.7 GPA
- Concentration in Robotics, Control Systems, and Computer Graphics

Professional Experience

Software Automation Engineering *Tesla* | June 2023 - Present | Palo Alto, CA

- Testing Automation Platform
  - Developed a hardware automation testing full-stack platform for distributing, executing tests, and compiling results across many testers (Python server & nodes, React frontend).
  - Allowed for arbitrary execution of tests depending upon each tester's capabilities, enabling more generic tests to be written, and more software variants to be covered.
  - Reduced artifact collection & queuing time by over 90% (from ~1hr to <5min), added an interface for other engineers to easily view log results & plot signals in real time.
  - Dramatically reduced time & simplified test development process by creating CLI & secondary pipeline for ad hoc tests, enabling any developer to write and run tests with live terminal log.
- Phone Automation System
  - Developed system for controlling both Android and Apple smartphones for test automation with dashboard and control infrastructure for simple deployment (routing with one or more servers).
  - Used CNNs to identify all characters, symbols, features within images to avoid querying elements & text, resulting in an ~80% reduction in average test duration.
- Misc Projects & Contributions
  - Contributed to software testing infrastructure by making abstract models for easier parametrization.
  - Developed new testers for testing phone-to-vehicle interactions (BLE), TPMS, and NFC.
  - Designed schematic & PCBs to test subsystems in isolation with built-in current measurements & misc external controls, improving sleep testing & controller MIA testing.

Automation Engineering Internship *Intuitive Surgical* | May 2022 - August 2022 | Sunnyvale, CA

- Designed, built, and deployed C# GUI applications controlling robotic assemblies for manufacturing.
- Developed UV laser marker and 5-axis robotic arm interfaces, and integrated into manual applications.

Electrical Engineering Co-op *SimpliSafe* | August 2021 - January 2022 | Boston, MA

- Wrote web applications using JS for video & image quality analysis (noise & color accuracy).
- Wrote a GUI Python PyQt6 application for flashing broken cameras, as well as designed and prototyped custom PCBs for a fully automated process. Recovered over 4000 cameras.

Automation and Control Engineering Internship *Cree* | May 2020 - August 2020 | Durham, NC

- Created GUI applications for numerical data collection, analysis, and storage in VB.Net & C++.
- Implemented algorithms for high-speed discrete signal processing for audio analysis.

Relevant Experience & Projects

- Created teaching/grading platform using React & Node for autograding circuit design & analysis
- Developed multiplayer games using EC2 server for routing & synchronization with WebGL frontend
- Developed WebGL library for simplifying 3D rendering in browser for game development
- Implemented web-based analog circuit simulator for dynamic systems using steady-state nodal analysis
- Programmed basic games (snake, etc) and trained neural networks to play the games (see portfolio)
- Designed and built CNC Router for milling custom PCBs for rapid prototyping of audio amplifiers

Programming Languages: Python | Java | JS | HTML | CSS | SQL | C | C# | C++ | NodeJS | VB.Net | Rust
Software: VSCode | Git | Jira | Fusion360 | Solidworks | Altium | NX | Onshape | LTspice | PostgreSQL
Libraries & Frameworks: PyTorch | OpenGL | WebGL | OpenCV | NumPy | Tkinter | ReactJS | NextJS