Andrew C. Huie

+81 (70) · 4387 · 8863 ◇ achuie@pm.me

Software engineer with eight years of experience developing complex systems and applications.
Strong problem solver accustomed to working in Linux environments on containerized programs.
Focused on developing reliable, maintainable, and intuitive software.

EXPERIENCE

Software Engineer Jun 2021–Present
Mujin, Inc. — Autonomous industrial robotics solutions *Koto, Tokyo, JP*

- Developed live controller monitoring bot in **Go**, reducing response time from ~**1 day** to ~**10 minutes** for thousands of deployments
  - Created system usage statistics module to enable automated hardware issue support
  - Designed and implemented module to stream controller state info from **GraphQL** over websockets
  - Automated deployment with **GitLab** and **Kubernetes**
- Engineered controller system simulator, enabling company-wide **test-driven development**
  - Simulated **QML** UI interactions to automate validation for on-site operations
  - Emulated warehouse control systems (WCS/**PLC**) in **Python** for integration testing critical features
  - Designed and programmed threaded control routines for testing complex hardware interactions
  - Created and implemented per-project test suites of feature, corner-case, and **fault-injection** tests to provide guarantees for project deliverables
- Devised and programmed Industrial Task Language (**ITL**) control software for peripheral robotic hardware
- Developed system inspection web app using **ReactJS** & Python for **forensic debugging**
- Spearheaded, designed, and implemented **Pytest** framework to validate override- & migration- operations on controller configurations, reducing downtime and debugging in on-site, production deployments
- Evaluated and prototyped **Nix** for better reproducibility of builds and development, runtime, and test environments compared to JHBuild
- Set up and calibrated physical 6-axis robot test cells and successful expo demos

Senior Software Engineer Sep 2017–May 2021
Ascent Robotics, Inc. — Autonomous robotics technology development *Shibuya, Tokyo, JP*

- Developed autonomous vehicle simulation suite for training/evaluating decision-making algorithms
  - **Lanelet2/OpenDrive** map generator for in-house road network format, designed to facilitate searching for difficult scenarios in **Rust**
  - Emulation of perception stack output for agent training in sim environment in **Python**
  - Lightweight collision sim for **MCTS** playout/rollout step in Rust
  - High fidelity driving sim using **Unreal Engine 4** with output similar to car platform
- Conducted screening interviews for hiring candidates
- Created data generation pipeline for object recognition in publication:
  Object Detection using Domain Randomization and Generative Adversarial Refinement of Synthetic Images *ArXiv* **2018**
  Fernando Camaro Nogues, **Andrew Huie**, Sakyasingha Dasgupta

Research Assistant May–Sep 2016
Dr. Robert Cartwright, Rice University — Object-oriented program development *Houston, TX, USA*

- Created a new release of DrJava, a pedagogic integrated development environment (IDE)
- Adapted the JaCoCo Java code coverage library for integrated use in DrJava
- Debugged JUnit integration, Find/Replace, other UI features
- Updated documentation with DocBook

Research Assistant May–Aug 2015
Dr. Dan Wallach, Rice University — Java TCP/IP penetration testing *Houston, TX, USA*

- Inspected the security of TCP connections in Java 8, regarding the HotSpot JVM heap
- Ran thousands of automated trials in VMWare to stress test garbage collector
- Analyzed the JVM heap with VisualVM
- Discovered and patched security flaws

Electrical Engineering Intern Feb–Aug 2014
LumaDyne Aerospace & Scientific, LLC — Purpose-built scientific instruments *Houston, TX, USA*

- Designed and fabricated application-specific printed circuit boards
- Experience with hardware and software design tools: Multisim, Ultiboard, and LabVIEW
  - 3-phase brushless motor driver (PWM generator)
  - piezoelectric crystal controller (PID control system on FPGA with modbus serioal I/O)
  - analog logic board
- Extensive soldering experience with through-hole- and surface- mount devices

IT Intern May–Aug 2013
Salient Partners, L.P. — Financial assets management firm *Houston, TX, USA*

- Diagnosed and resolved a range of software, hardware, and network issues
- Deployed and repaired Dell workstations

TECHNICAL PROFICIENCY

Computer Languages Python, Rust, Go, Bash, C++, Java, Nix, JavaScript
Development Tools Pytest, GNU/Linux (Arch & Debian), Git, GitLab, Docker, Kubernetes, Nixpkgs

EDUCATION

Rice University *Houston, TX, USA*
Bachelor of Arts in Computer Science, 2016

Relevant Coursework:

Automata, Formal Languages, and Computability	*Spring 2016*
Principles of Programming Languages	*Spring 2016*
Computer Graphics (Game Design)	*Spring 2016*
Tools and Models in Data Science	*Fall 2015*
Operating Systems and Concurrent Programming	*Spring 2015*
Computer Security	*Spring 2015*
Computer Networks	*Fall 2014*
Object Oriented Programming	*Fall 2014*

PROJECTS

scrambler github.com:achuie/scrambler

Scramble generator for the Rubik's Cube. Random move generator as a baseline, with a more sophisticated IDA* solver in the works. Packaged with Nix `$ nix run github:achuie/scrambler -- rand`

Cutthroat github.com:achuie/cutthroat

Networked multiplayer, top-down, ASCII-art shooter video game written in Java in which players mine for ammo and weapon upgrades, and win by reaching a number of kills.