Andrew C. Huie

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Software engineer with eight years of experience developing complex systems and applications. Strong problem solver specializing in Linux systems and containerized programs. Focused on building resilient, maintainable, and intuitive systems.

TECHNICAL PROFICIENCY

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

EXPERIENCE

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

- Led test strategy for customer projects, coordinating cross-team efforts, hardware simulation, and automated validation
- Built test tools for **forensic debugging** & **root cause analysis**, patching hundreds of bugs
- Architected **Pytest** framework to validate controller config migrations, cutting on-site downtime and debugging
- Developed live monitoring bot in **Go**, cutting response time from days to minutes across 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**
  - Automated **QML** UI interaction for validation of on-site operations
  - Emulated warehouse control systems (WCS/**PLC**) in **Python** for integration testing
  - Built threaded control routines simulating complex hardware & robot sequences
  - Developed per-project suites of feature, edge case, and **fault-injection** tests for project deliverables
- Devised and programmed Industrial Task Language (**ITL**) control software for robotic peripherals
- Developed system inspection web app using **ReactJS** & Python
- Prototyped **Nix**-based reproducible builds and development environments, improving DX vs. 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*

- Built autonomous vehicle simulation suite for decision algorithm training and evaluation
  - Developed **Rust**-based **Lanelet2/OpenDrive** map generator to search for high-difficulty test scenarios
  - Emulated perception stack output for agent training in sim environment in **Python**
  - Designed and implemented lightweight collision sim for **MCTS** playout/rollout step in Rust
  - Developed **Unreal Engine 4** driving simulation replicating car platform sensor output
- Conducted screening interviews for hiring candidates during growth phase of startup
- 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 serial 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

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*

PUBLIC 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`

website github.com:achuie/website