Julian Coy Loiacono

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Julian's Website

Software & Systems Engineer | Python, C++ | Embedded & Backend Systems:

Software and systems engineer with a B.S. in Computer Engineering and experience developing embedded systems, automation tools, and backend applications using Python and C++. Strong background in debugging complex systems, integrating hardware and software, and building reliable data-processing pipelines. Comfortable working across the full development lifecycle from prototyping and system integration through testing and deployment.

Core Skills:

- **Programming Languages:** Python, JavaScript, C/C++
- **Software & Systems Engineering:** Debugging complex systems, automation scripting, data processing, system integration, log analysis, algorithm implementation.
- **Embedded & Hardware Systems:** Microcontrollers, ARM Cortex platforms, FPGA integration, PCB development (KiCad), hardware debugging.
- **Tools & Environments:** Git, Docker, Linux environments, SQL basics, development automation workflows.
- **Cloud:** AWS (Solutions Architect Associate), EC2, S3, containerized application deployment.

Professional Experience:

Platform Engineer (Part-Time)
Arkavo | Nov 2024 - Present
- Developing a secure messaging platform and distributed backend services.
- Working with Python, React, Docker, AWS, Go, Keycloak, and NGINX to build a scalable full-stack system.
- Supporting authentication, encryption, and infrastructure integration.

Electronics Engineer (Part-Time)
Bike Powered Events | Nov 2021 - Present
- Designed and built interactive, bike-powered electronic systems used in public installations and live events.
- Developed embedded software using C++ on microcontrollers and supporting tools in Python.
- Designed and iterated printed circuit boards using KiCad, including prototyping and testing.
- Assembled and tested hardware units, troubleshooting electrical and firmware issues.

Technology Lab Systems Support (Volunteer)
Digital Harbor Foundation | Jan 2026 – Present
- Configured and deployed workstation environments for a technology lab supporting programming and engineering education.
- Installed operating systems, development tools, and software used for student STEM projects.
- Diagnosed and resolved hardware and software issues across lab systems.

Automation Engineer (Contract)
Intel | Aug 2023 – Oct 2023
- Developed Python tools to analyze hardware serial logs and detect system failure patterns across large device datasets.
- Converted raw device output into structured JSON and SQL formats for analysis pipelines.
- Built reproducible local test environments using Docker and database services.
- Organized repository structure and documentation to support maintainable automation workflows.

Lead AI Engineer (Embedded)
Reality AI | Mar 2020 – Nov 2021
- Developed machine-learning algorithms for microcontrollers using C and C++ targeting ARM Cortex and other embedded platforms.

- Contributed to backend services supporting machine-learning workflows.
- Standardized development workflows using Git, GitHub, and Jira.
- Assisted in managing interns and organizing engineering codebases.

Software Engineer (Embedded Systems)

Equinox Corporation | Nov 2018 – Feb 2020

- Developed embedded software for production systems.
- Contributed to complex PCB platforms with FPGA and microcontroller architecture.
- Implemented real-time image segmentation pipelines.

Selected Engineering Projects:

JSynth | Expressive Software Synthesizer

JSynth — Web-Based Audio Synthesis Application: JSynth @ Built with Charm Demo Day

- A low-latency C++ audio project
- Runs on Ubuntu, Windows, MacOS

Technologies: C++, QT, Docker

Dragontech Hardware Projects

Independent Engineering Projects

zynqPCB

- Designed an 8-layer FBGA-based synthesizer using Xilinx Zynq architecture.

Bracelite

- Designed a flexible PCB wearable device with programmable LED patterns and lithium-ion battery power.

Engineering Tools Used: Oscilloscope, multimeter, infrared imaging for circuit debugging, and GDB for embedded software debugging.

Technical Community Leadership:

Organizer – Code Collective | 2024 - Present

- Organized technical meetups and initiatives to support collaboration among local engineers.
- Built a Baltimore tech events calendar to connect developers and researchers. Code Collective | Tech Events Calendar & Tech Labor Organization

Co-Organizer – Code and Coffee (Baltimore) | 2023 - 2024

- Supported bi-weekly community meetups focused on programming and technical collaboration.

Education:

B.S. Computer Engineering
University of Maryland, Baltimore County
GPA 3.67, Cum Laude; full academic scholarship

Certifications:

- AWS Certified Solutions Architect – Associate
- Professional Scrum Product Owner I (PSPO)
- TensorFlow Developer Certificate

Online Coursework:

- Stanford University - Machine Learning
- DeepLearning.AI – TensorFlow Professional
- Google - Site Reliability Engineering
- UC Davis - SQL Basics for Data Science
- Stanford – Audio Signal Processing for Music Applications