Zachary Young

Software Engineer | System Software | C++ | Python
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Key Skills

Programming Languages: C, C++, Python, Bash, SPL (Splunk), Haskell •
Technologies & Tools: Docker, Linux, Git, CI/CD Pipelines, Groovy, JIRA, Pandas •
Domains: Embedded Systems, Vehicle Firmware, Automated Testing, Fault Tolerant Frameworks

Summary

Software Engineer with 3+ years of experience contributing directly to production code in C++, Python, and embedded systems at Tesla. Proven track record of designing performance-critical software, debugging complex system-level issues, and developing tools that streamline development workflows. Passionate about building robust, scalable systems and now seeking a full-time software engineering position.

Education

University of California, Berkeley

Bachelor of Arts in Computer Science — GPA: 3.67

- **Computer Graphics**: Developed real-time, GPU-rendered, ray-traced volumetric clouds
- **Computer Security**: Engineered an end-to-end encrypted document store, ensuring secure data exchange.
- **Intro to Artificial Intelligence**: Designed and trained a neural network for digit classification with high accuracy.

Professional Experience

Senior Software QA Engineer - Tesla Motors - March 2024 to Present

Software Engineer - Performance Metrics, Bug Fixes - C, C++

- **Strategically designed vehicle software for data reporting** across multiple performance critical systems.
- Fix bugs in startup paths of audio systems to reduce false reports of failure in disparate embedded systems and system software processes.
- Reduced latency by half for customer inputs to critical audio systems.

Software Engineer in Test - ADSP Hardware-in-Loop – C, Python, Groovy

- **Reverse engineered vendor hardware** using off-the-shell components to enable robust testing of eCall code paths
- **Spearheaded the design of custom Hardware-in-the-Loop (HIL) testers**, enabling precise validation of homologated vehicle components.
- Developed automated test result pipelines that correlate unique failure identifiers with known regressions, enhancing diagnostic accuracy.
- Expanded CI pipelines to seamlessly integrate new and legacy platforms, improving scalability and system reliability.

Data Engineer - Audio Report – Splunk, Python, Pandas

- **Achieved 85% reduction in software signoff time** by creating an automated data pipeline that aggregates historical data for cross-comparison, accelerating decision-making from 7 days to 1 day.
- Developed robust post-processing algorithms that identify regressions, distinguishing between hardware and software issues to minimize false positives.
- Automated JIRA ticket generation based on regression results, ensuring swift and actionable insights for engineering teams.
- Authored detailed regression analysis reports with clear next steps, improving the feedback loop between QA and development.

Integration Engineer - System Software Audio - Management

- **Project manage a team of developers and technicians** for 3rd party certification of new projects touching wireless, audio, and video systems in an accelerated timeline
- Design robust automated and manual test suites for features that encompass embedded systems, the linux kernel, system software, and UI applications
- Build, maintain, and repair hardware for shared resources across multiple teams including the vehicle infotainment, HIL testers, and testing equipment

Test Engineer - Tesla Motors - March 2022 to March 2024

Software Engineer in Test - Fault Tolerant Testing Framework - Bash, Python

- **Reduced bug reproduction timelines from weeks to hours** by developing a fault-tolerant testing framework capable of power cycling systems locally or remotely.
- Designed a flexible yet expressive test-writing library with detailed, step-by-step execution feedback to empower engineers during root cause analysis.
- Improved system stability through automated recovery mechanisms that minimized manual intervention.

Test Engineer - Bug Report Triage

- Self-motivated as the primary escalation point for all audio and media-related defects across Tesla's vehicle fleet.
- Developed log-parsing tools that reduced bug triage time from hours to minutes, automating data extraction from complex vehicle logs.
- Delivered critical fixes to core audio components in Tesla's infotainment system, improving user experience and system stability.

IT Intern - City of Pismo Beach - Summer 2019

- Led secure data disposal processes for law enforcement records, ensuring compliance with data privacy regulations.
- Developed SharePoint dashboards to improve operational transparency for city employees.
- Performed system re-imaging and inventory management to enhance IT infrastructure readiness.

Personal Projects

Music Step Sequencer - C++, Qt

- https://github.com/zyoungdev/sequencer
- Engineered a versatile step sequencer with configurable grid dimensions, tempo control, and random pattern generation.
- Integrated MIDI export functionality to enable seamless music composition.
- Optimized performance through efficient data structures and algorithm design.

Technical Blog

- https://zyoung.dev
- Authored technical content covering C++ patterns, Linux tools, and containerization strategies using LXC.
- Developed a custom CMS featuring tagging, pagination, login, and image upload capabilities using Laravel and JavaScript.
- Created interactive code examples to demonstrate advanced programming concepts, attracting engagement from technical communities.