

Tate Bradley

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SUMMARY

Senior **software and firmware engineer** with 10 years of semiconductor and embedded systems experience across high speed SerDes, **data conversion IP**, Linux system software, and hardware software integration. Develops and refactors C and C++ firmware, threaded services, network programming components, drivers, and system level software across full product lifecycles. Builds gtest regression coverage and Jenkins CI/CD workflows that support dependable releases and next generation hardware. Debugs difficult behavior through oscilloscopes, spectrum analyzers, RTL Verilog simulations, laboratory reproduction, and disciplined field analysis. Brings practical experience with kernel facing components, Bash, Python, shell automation, **test equipment control**, SPI, TWI, UART, USB, Git, Jira, and compute environments. Documents interfaces clearly, supports customers under time pressure, mentors engineers, and helps teams make sound **hardware software tradeoffs**.

EXPERIENCE

Senior Software and Firmware Engineer

January 2022 - Present

VectorPeak Microelectronics

Denver, CO

Led software and firmware development for SerDes and data conversion platforms, guiding regression quality, Linux infrastructure, laboratory validation, and field support. Coordinated technical reviews, clarified evidence, and helped engineers move difficult issues toward practical release decisions.

- Refactored C and C++ SerDes firmware for clearer maintenance and more predictable platform behavior
- Expanded **gtest** regression coverage around **data conversion IP** and improved confidence during hardware revisions
- Connected Jenkins **CI/CD** workflows with Linux validation steps for repeatable software delivery
- Reproduced field failures with oscilloscopes, **spectrum analyzers**, and **RTL Verilog** simulations
- Documented interfaces, assumptions, and findings so partner teams could act without repeated investigation
- Mentored engineers through **hardware software tradeoffs**, review preparation, and disciplined laboratory debugging

Software and Firmware Engineer

January 2019 - December 2021

FrontRange Silicon Labs

Colorado Springs, CO

Developed Linux system software, drivers, threaded C and C++ services, network interfaces, and field diagnostic workflows. Supported product delivery through Bash automation, Git practices, customer issue analysis, and clear technical records shared across engineering teams.

- Implemented **Linux drivers** and kernel facing components for embedded product integration
- Improved threaded C and **C++** services supporting reliable network communication under sustained workloads
- Automated diagnostic workflows with **Bash**, **Python**, and shell scripts for faster issue reproduction
- Used Git and **Jira** to organize fixes, evidence, reviews, and release follow through
- Investigated field deployed failures and converted customer observations into actionable engineering tests
- Prepared concise system documentation that helped partners resolve interface questions independently

Embedded Software Engineer

January 2017 - December 2018

Summit Embedded Systems

Aurora, CO

Built embedded software supporting board interfaces, test control, and hardware software integration. Worked closely with laboratory and design partners on prototype behavior, interface validation, documentation, and practical decisions that improved repeatability before release.

- Built embedded C and C++ firmware for **SPI**, **TWI**, **UART**, and **USB** interfaces
- Controlled laboratory equipment with Python scripts during board bring up and validation
- Compared hardware behavior with software assumptions during integration reviews and bench testing
- Created repeatable checks that exposed interface faults before broader system verification
- Recorded test conditions and results so quieter failure patterns received proper engineering attention
- Supported prototype decisions with concise evidence from laboratory measurements and software traces

Junior Firmware Engineer

October 2016 - December 2016

Mesa Signal Technologies

Fort Collins, CO

Supported supervised firmware prototyping, regression checks, interface documentation, and bench debugging for mixed hardware and software systems. Learned release discipline through careful reproduction, review preparation, and clear communication with senior engineering staff.

- Implemented supervised C **firmware** prototypes for mixed hardware and software demonstrations
- Added regression checks that gave reviewers clearer evidence during prototype revisions
- Used bench instruments to reproduce interface behavior and record useful observations
- Documented procedures and interface assumptions for senior engineers reviewing prototype readiness
- Applied feedback from design reviews to improve code clarity and test repeatability

PROJECTS

SerDes Validation Modernization 📅 2024

Partnered with platform engineers around a shared goal, modernizing regression and laboratory validation for high speed serial behavior. Combined gtest, Jenkins, Linux, oscilloscopes, spectrum analyzers, and RTL Verilog simulations into a clearer path from failure evidence to release action.

Embedded Interface Test Automation 📅 2021

Built stronger working ties between firmware and hardware contributors through Python controlled testing for SPI, TWI, UART, and USB interfaces. Shared repeatable procedures that made prototype discussions more focused and productive.

LEADERSHIP & AWARDS

- Recognized by engineering leadership for dependable SerDes validation and clear field issue analysis.
- Selected as a peer mentor for practical Linux, firmware debugging, and hardware software integration guidance.
- Trusted by cross functional partners for concise documentation and calm decision support during release pressure.

EDUCATION

Bachelor of Science in Electrical Engineering

Colorado State University GPA: 0

2016

Fort Collins, CO

Coursework: Embedded systems, digital logic, computer architecture, electrical circuits

CERTIFICATIONS

- Linux Foundation Certified System Administrator 📅 2024
- Git Version Control Foundations 📅 2023

TECHNICAL SKILLS

- **Programming Languages:** C, C++, Python
- **Embedded Interfaces:** SPI, TWI, UART
- **Communication Protocols:** USB, SerDes, network programming
- **Linux Development:** Linux, Bash, shell scripting
- **Firmware Components:** Kernel modules, drivers, firmware
- **Testing Frameworks:** gtest, regression testing, RTL Verilog
- **Continuous Delivery:** Jenkins, CI/CD, Git
- **Laboratory Equipment:** Oscilloscopes, spectrum analyzers, test equipment control
- **Engineering Platforms:** Data conversion IP, next generation hardware, compute clusters
- **Work Management:** Jira, technical documentation, field diagnostics

SKILLS

- | | | | |
|----------------------|----------------------------|-----------|----------|
| • C/C++ | • Threading | • Drivers | • Bash |
| • Firmware | • Network Programming | • gtest | • Python |
| • SerDes | • Linux System Programming | • Jenkins | • SPI |
| • Data Conversion IP | • Kernel Modules | • CI/CD | |

PROFESSIONAL AFFILIATIONS

- Linux Foundation community participant, sharing practical system administration and embedded Linux interests.
- IEEE professional member, staying connected with electrical engineering and embedded systems peers.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST