

Legend Blake

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SUMMARY

Senior Electrical Engineer specializing in rail vehicle software, **software quality assurance**, **electrical systems integration**, and **transit procurement** support, with 14 years of experience across safety sensitive transportation programs. Translates agency needs into software requirements and technical specifications, evaluates supplier proposals and submittals, leads design reviews, conducts **Software Quality Assurance audits**, and witnesses software and system level tests. Applies EN 50128, EN 50657, FRA regulations, IEEE safety practices, requirements traceability, configuration management, and verification evidence across rail vehicle systems. Leads multidisciplinary reviews, mentors vehicle electrical engineers, and explains technical findings clearly to engineering teams, suppliers, agency leaders, and non technical clients. PE licensed with practical experience across onboard control, communications, diagnostics, propulsion, doors, train control, passenger information, and electrical interfaces. Ready to contribute sound judgment, clear analysis, and collaborative delivery on complex rail programs.

EXPERIENCE

Principal Vehicle Software Engineer

February 2022 - Present

Cascade Rail Systems Advisory

Portland, Oregon

Leads software requirements, assurance, supplier evaluation, audit, testing, and multidisciplinary review activities for **rail vehicle procurements**. Coordinates engineers across concurrent projects, mentors staff, and provides clients with clear technical evidence for acceptance decisions.

- Connected agency needs with supplier specifications and verification evidence for rail procurements.
- Authored **software specifications** for onboard control, communications, diagnostics, and electrical interfaces.
- Evaluated supplier submittals against **EN 50128**, **EN 50657**, FRA regulations, and IEEE safety practices.
- Audited supplier quality systems, traceability, configuration controls, testing, and corrective action records.
- Witnessed equipment tests and documented acceptance findings for client decision makers.
- Coordinated review teams and coached engineers on **software** practices and **artificial intelligence coding tools**.

Senior Electrical and Software Engineer

May 2018 - January 2022

Pacific Transit Engineering Partners

Sacramento, California

Supported new vehicle and modernization procurements through requirements analysis, design reviews, supplier evaluations, factory testing, and client reporting. Built practical connections among electrical engineers, software teams, suppliers, and transit stakeholders during high consequence decisions.

- Supported vehicle procurements through design reviews, requirements analysis, and supplier evaluations.
- Reviewed propulsion, door, train control, passenger information, and diagnostic **interfaces**.
- Built traceability matrices connecting specifications, responses, procedures, discrepancies, and closure evidence.
- Explained **software** compliance findings and resolution options to technical and non technical clients.
- Witnessed **factory tests** and investigated anomalies with supplier engineering teams before acceptance decisions.
- Mentored electrical engineers on standards interpretation and multidisciplinary review practices.

Electrical Software Engineer

July 2015 - April 2018

Metro Vehicle Integration Group

Denver, Colorado

Developed and reviewed **embedded software** requirements for vehicle electrical subsystems and interface controllers. Supported integration testing, supplier change analysis, technical reporting, standards research, and procurement specification updates for software intensive rail equipment.

- Developed embedded requirements for vehicle electrical subsystems and interface controllers.
- Reviewed requirements, design descriptions, source changes, and verification records.
- Supported onboard **software** integration tests with controlled procedures and defect logs.
- Analyzed supplier change packages for interface impact, regression scope, and configuration consistency.
- Converted test observations into clear engineering dispositions and follow up actions.
- Updated procurement specifications through standards research for software intensive rail equipment.

Software Engineer

June 2012 - June 2015

Western Mobility Controls

Phoenix, Arizona

Developed and tested control and diagnostic software for transportation electrical equipment under senior engineering oversight. Converted system requirements into software functions, unit tests, interface documentation, defect investigations, and release evidence for quality review.

- Developed control and **diagnostic software** for transportation electrical equipment under senior oversight.

- Converted **system requirements** into **software** functions and unit tests with controlled records.
- Investigated **hardware in the loop** defects and documented root causes for integration teams.
- Supported code reviews and release checks focused on traceability and reproducible builds.
- Created interface documentation for controllers, sensors, communications, and vehicle power systems.
- Contributed verification evidence used by quality engineers during release approval.

PROJECTS

Rail Vehicle Software Assurance Program 📅 2024

Good rail software work starts before testing. Led a distinct assurance initiative that aligned supplier lifecycle evidence, audit preparation, requirements traceability, and client acceptance decisions across software intensive vehicle systems.

Vehicle Interface Verification Framework 📅 2021

A useful interface review asks what could fail after approval. Built a separate framework for examining propulsion, diagnostics, communications, and electrical interface changes through controlled tests and closure evidence.

LEADERSHIP & AWARDS

- Professional Engineer license awarded for Electrical Engineering practice, 2021.
- INCOSE Systems Engineering Professional Development Certificate, 2024.
- Led peer mentoring efforts that improved consistency across multidisciplinary rail vehicle software reviews.

EDUCATION

Bachelor's Degree in Electrical Engineering

Arizona State University GPA: 3.5

2012

Tempe, Arizona

Coursework: Software engineering, electrical systems, control systems, engineering design

CERTIFICATIONS

- Professional Engineer, Electrical 📅 2021
- INCOSE Systems Engineering Professional Development Certificate 📅 2024

TECHNICAL SKILLS

- **Rail Software Standards:** EN 50128, EN 50657, IEEE safety standards
- **Regulatory Compliance:** FRA regulations, rail procurement, safety compliance
- **Software Assurance:** Software Quality Assurance, supplier audits, lifecycle controls
- **Requirements Engineering:** Requirements traceability, technical specifications, verification evidence
- **Testing and Verification:** System testing, factory tests, equipment tests
- **Electrical Systems:** Propulsion systems, vehicle power systems, electrical interfaces
- **Embedded Software:** Embedded software, control software, diagnostic software
- **Configuration Management:** Configuration control, change packages, reproducible builds
- **Integration Engineering:** System integration, interface controllers, hardware in the loop
- **Review and Analysis:** Design reviews, supplier evaluations, compliance analysis

SKILLS

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|------------------------------|-------------------------|-----------------------------|------------------------|
| • Rail vehicle software | • EN 50128 | • Requirements traceability | • Mentoring |
| • Software quality assurance | • EN 50657 | • System testing | • Software engineering |
| • Technical specifications | • FRA regulations | • Electrical interfaces | • Client communication |
| • Supplier audits | • IEEE safety standards | • Procurement reviews | |

PROFESSIONAL AFFILIATIONS

- INCOSE member, systems engineering professional development community.
- Professional engineering community participant focused on transportation safety and quality.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST