

## Software Engineering Leader

Technically minded and results-driven professional with more than 15 years of experience in leading software organizations, developing mission-critical C/C++ platforms, and delivering secure high-performance solutions across defense, aerospace, cybersecurity, and advanced technology environments.

- Expert in creating C/C++ applications, developing embedded Linux and RTOS-based solutions, and advancing secure communications, firmware, and systems integration capabilities for technology programs.
- Highly proficient in driving software modernization efforts, optimizing platform portability and performance, and establishing engineering practices that improve code quality, maintainability, and long-term product sustainability.
- Skilled in managing technical roadmaps, coordinating Agile delivery activities, and aligning engineering execution with customer expectations, operational goals, and program milestones while remaining engaged in software development.
- Recognized for mentoring engineering talent, fostering collaborative technical cultures, and bridging communication between development teams, program stakeholders, and end users to boost delivery of dependable software solutions.

## Areas of Expertise

• Software Architecture	• Secure Software Design	• Embedded Linux Platforms
• Software Engineering Leadership	• Firmware Development	• Technical Team Management
• C/C++ Application Development	• Software Modernization	• Systems Integration Strategy
• Defense Systems Development	• Agile Program Execution	• Real-Time Operating Systems
• Requirements & Risk Management	• Cybersecurity Engineering	• Avionics Systems Engineering

## Professional Experience

### Software Engineering Manager | Economic Modeling LLC (LIGHTCAST) – Remote Dec 2022 – Present

Manage architecture strategy for enterprise software portfolio, guiding modernization initiatives, establishing development standards, and advancing scalable C++ application frameworks across multiple production environments. Oversee engineering execution for high-volume data processing platforms, coordinating Agile delivery activities, prioritizing technical objectives, and aligning development efforts with organizational requirements. Develop technical excellence through code governance, performance optimization practices, engineering mentorship, and workforce development initiatives that strengthen software quality and operational stability.

- **Modernized** approximately 30 production software applications by architecting and leading migration efforts from legacy technologies to C++, expanding platform portability and long-term maintainability.
- **Increased** multilingual language coverage by more than 4X by directing globalization initiatives, enhancing linguistic processing capabilities, and broadening international software support.
- **Improved** application performance and accuracy by establishing modern C++ development practices, advancing software optimization efforts, and leading a team of four to six engineers through large-scale transformation programs.

### Senior Principal Engineer, Software | Performance Software – Remote Feb 2022 – Dec 2022

Architected embedded avionics software solutions connecting aircraft subsystems, maintenance platforms, and remote management environments through secure Linux-based communication frameworks. Engineered cybersecurity-focused capabilities for safety-critical applications, developing cryptographic controls, hardening platform security, and supporting trusted software deployment processes. Produced system architecture documentation, refined technical requirements, and collaborated with multidisciplinary stakeholders to advance Agile software delivery and verification activities.

- **Developed** cybersecurity enforcement functionality for an aeronautic LRU cloud gateway interface by architecting secure authentication, software signing, and protected data exchange mechanisms.
- **Enabled** trusted remote software deployment capabilities by authoring security-centric embedded components supporting authenticated delivery and validation of production software assets.
- **Advanced** embedded platform security posture by integrating cryptographic protections, strengthening system resilience, and supporting compliance within aviation-focused development environments.

## Senior Principal Engineer, Software | Northrop Grumman – Melbourne, FL

Oct 2019 – Feb 2022

Supervised backlog governance for mission-critical cockpit display software, prioritizing development activities, coordinating engineering resources, and supporting delivery commitments for advanced aerospace programs. Led Agile execution across sensor integration initiatives, translating operational requirements into actionable user stories, facilitating sprint activities, and contributing to software development efforts. Collaborated with systems engineers, program leadership, and flight personnel to support platform integration goal and advance software validation strategies.

- **Managed** execution of more than 500 user stories by coordinating Agile development activities, establishing work priorities, and leading delivery efforts for cockpit display sensor functionality on the B-21 Raider platform.
- **Guided** a team of six engineers by overseeing sprint planning, workload distribution, technical direction, and cross-functional collaboration throughout software development lifecycles.
- **Accelerated** mission system integration activities by partnering with program managers, fellow technical leads, and test pilots to convert operational requirements into deployable software capabilities.

## Senior Engineering Lead | POCYDON – Melbourne, FL

Feb 2017 – Oct 2019

Led software engineering and cybersecurity research initiatives for government-focused programs, providing technical leadership across embedded systems, reverse engineering, and vulnerability assessment activities. Performed firmware, hardware, and operating system analysis across automotive, embedded Linux, Android, and proprietary platforms to identify security weaknesses and support advanced research efforts.

- **Became** the first engineer hired by this cybersecurity startup by providing foundational technical leadership, supporting organizational development, and expanding engineering capabilities across multiple initiatives.
- **Enhanced** vulnerability discovery and security research effectiveness by conducting reverse engineering of QNX, embedded Linux, and Android-based systems utilizing advanced binary analysis and protocol inspection techniques.
- **Strengthened** operational collaboration by deploying and administering an offline Atlassian ecosystem, delivering secure project management, documentation, and source control capabilities for internal engineering teams.

## Senior Software Engineer | RAYTHEON SIGOV/COI – Indialantic, FL

Jan 2011 – Jan 2017

Led development of embedded software solutions for unattended sensor platforms, integrating secure communications capabilities, remote management functionality, and mission-focused operational features. Engineered firmware and systems-level applications across RTOS, Linux, and custom hardware environments, supporting communications, networking, encryption, and platform control requirements. Collaborated with engineering, capture, and research teams to develop technical concepts, support business development activities, and advance cybersecurity-focused software initiatives.

- **Delivered** the site's primary hardware product suite by leading software architecture, embedded development, and feature implementation efforts for remotely managed sensor platforms.
- **Expanded** platform capabilities by developing secure communications frameworks, remote command-and-control functionality, and CAN-based networking solutions for a range of assets.
- **Advanced** cybersecurity research objectives by conducting vulnerability assessments, performing reverse engineering activities, and creating specialized tooling for security-focused programs.
- **Strengthened** program capture efforts by authoring IRAD white papers, contributing technical content for proposal submissions, and supporting evaluation of emerging opportunities.
- **Enhanced** technical workforce development by designing the organization's Capture-the-Flag challenge platform and participating extensively in engineering recruitment and candidate assessment initiatives.

## Additional Experience

### Software Engineer | Northrop Grumman Xetron | Cincinnati, OH | Jan 2010 – Jan 2011

Developed embedded software components for defense-oriented platforms, creating secure communications functionality, protocol handling capabilities, and modular application architectures. Engineered RTOS-based networking solutions integrating Ethernet and CAN communications, supporting interoperability across distributed embedded systems and mission-critical hardware environments. Applied test-driven development methodologies, authored unit tests, and collaborated with multidisciplinary engineering teams to improve software reliability and maintainability.

## Education

**Bachelor of Science in Computer Engineering** | Washington State University – Washington

## Technical Proficiencies

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**Programming Languages:** C, C++, Python, Bash, SQL, JavaScript, Assembly

**Embedded & Real-Time Systems:** Embedded Linux, FreeRTOS, TI-RTOS, VxWorks, OpenWRT, OpenEmbedded, Yocto, Buildroot, Wind River Linux, Red Hat Enterprise Linux

**Embedded Communications:** CAN, SPI, I2C, UART, TCP/IP, UDP, AFDX, MIL-STD-1553, ARINC 661, GPS

**Cybersecurity & Reverse Engineering:** Cryptography, Secure Communications, Integrity Checking, Tamper Detection, Vulnerability Research, Firmware Analysis, Reverse Engineering, IDA Pro, Binary Ninja, Hopper, Binwalk, Readelf

**Development & DevOps Tools:** Git, GitLab, GitLab CI/CD, SVN, Docker, CMake, Jira, Confluence, Atlassian Suite, Enterprise Architect, DOORS, Rhapsody

**Cloud & Database Technologies:** AWS, PostgreSQL, MySQL, SQLite, HSQLDB

**Testing & Quality Assurance:** Unit Testing, Test-Driven Development (TDD), Automated Testing, Continuous Integration, Software Verification & Validation

**Defense, Aerospace & Embedded Domains:** Avionics Systems, Mission Systems, Embedded Platforms, Aerospace Software, Defense Programs, Sensor Integration, Product Security Engineering

## Highlighted Projects

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### Embed Creativity | Founder & Principal Engineer (<https://www.embedcreativity.com>)

Directed independent research and development initiatives focused on embedded systems, secure firmware, Linux platform engineering, and specialized software product development. Designed custom embedded solutions spanning wireless communications, firmware architecture, platform security, and commercial product enablement. Managed technical architecture, software development, system integration, and infrastructure administration across multiple engineering engagements.

#### Key Contributions:

- **Delivered** secure firmware functionality for a FIPS 140-2 security module by developing message-passing frameworks and hardware authentication capabilities supporting an SBIR-funded initiative.
- **Developed** a customer-facing software distribution portal by creating controlled access mechanisms for proprietary firmware and software deployment workflows.
- **Engineered** a 40-mile-per-hop 900MHz wireless mesh communication bridge supporting industrial and agricultural monitoring and control applications.
- **Implemented** OpenWRT Board Support Package (BSP) capabilities for a commercial Bluetooth mesh networking platform by developing customized embedded Linux functionality.
- **Established** a privately hosted GitLab environment by deploying source control, CI/CD, and collaboration infrastructure supporting ongoing software development activities.

### Technical Research & Product Development Initiatives

Advanced personal embedded product development efforts spanning hardware design, Linux platform customization, software engineering, and connected device architectures. Explored full-stack embedded ecosystems integrating firmware, operating systems, networking, and user-facing interfaces within self-directed research programs. Evaluated emerging technologies and development methodologies to expand expertise across embedded computing and intelligent device platforms.

#### Key Contributions:

- **Developed** custom printed circuit board (PCB) designs supporting embedded hardware prototyping and product experimentation.
- **Created** customized Linux distributions utilizing Yocto and Buildroot frameworks to support specialized embedded computing environments.
- **Architected** native C++ application components powering performance-focused embedded software solutions and platform services.
- **Designed** Wi-Fi-enabled user interface frameworks by integrating custom server technologies with HTML, CSS, and JavaScript-based presentation layers.