

Ivan Martinovic

PROFESSIONAL EXPERIENCE

Avidyne Corporation

Concord, MA(USA)

Software Engineer II

July 2023 – Present

- Led embedded software development for a digital avionics client at Avidyne, implementing C++ solutions across OS-level components (e.g., low-level I/O) and integrating with display systems for real-time UI rendering.
- Architected and optimized high-performance data processing pipelines, integrating with industry-standard simulation frameworks to enable hardware-in-the-loop (HIL) and software-in-the-loop (SIL) testing for aeronautical systems.
- Developed fault-tolerant networking software for mission-critical, safety-compliant systems, ensuring low-latency, high-reliability data transmission under strict regulatory constraints.
- Contributed to the design and development of software architectures for real-time data processing systems, ensuring scalability, reliability, and compliance with industry standards.
- Developed a cybersecurity module from the ground up, implementing secure communication and data validation using industry-standard cryptographic algorithms and an optimized large-number math library to enhance system security during communication and software/data loading processes.
- Architected and conducted white-box and black-box testing for safety-critical flight software, performing peer reviews to ensure compliance with DO-178C aviation software safety standards.

EDUCATION

Worcester Polytechnic Institute

Worcester, MA

Bachelor and Master of Computer Science (4.0 GPA)

May 2023

- **Major Qualifying Project, "Privacy Plaintiff"**
 - Developed a proof-of-concept application at the forefront of computer privacy research, enabling network administrators to monitor BYOD device traffic within corporate networks while preserving employee privacy.
 - Extended a network packet and UI data capture application on Android by developing a custom-made TLS packet parsing module from scratch in Java and Kotlin
 - Managed to break TLS encryption by extracting necessary information from various RFC technical specifications and implementing a TLS 1.2 server from-scratch capable of deciphering encrypted network traffic on an Android device
- Obtained **Cybersecurity Concentration** alongside Bachelor's degree

TECHNICAL SKILLS

Programming languages: C/C++, Python, SQL, PowerShell, Bash, JavaScript/HTML/CSS, Java, Go

Frameworks and libraries: OpenGL, PyTorch, Scikit-Learn, Socket.IO, React

Tools: Linux (Ubuntu/ Yocto), Windows, Makefiles, Git, Latex, Perforce, IBM Doors, Docker, Jira, AWS

Languages: Croatian(Native), English (Fluent) and German(Intermediate)