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KEY COMPETENCIES

- Experienced in embedded software development, test automation, and data visualization.

- 2+ years of experience developing firmware and test automation infrastructure within an SAFe Agile business environment for RTOS based military devices.

- 1+ years of graduate research experience developing photonic design automation tools with gradient descent and particle swarm optimization algorithms.

- Familiar with network technologies such as TCP/IP stack, NAT, ARP, OSPF, SNMP, iptables, VLANs, and Wireshark.

WORK EXPERIENCE

SEP 2021 - APR 2023 (FT)
University of Alberta - Electrical Engineering
Graduate Researcher in Photonics

- Independently developed and implemented a novel inverse design pipeline utilizing ANSYS Lumerical API with various peer-reviewed optimization algorithms for silicon photonics.

- Developed Python and MATLAB scripting tools to extract, analyze, and visualize simulation results, streamlining data-driven decision-making processes.

- Conducted comprehensive review of 300+ peer-reviewed academic papers for project planning, and troubleshooting.

- Engaged in bi-weekly synthesis and presentation of research findings tailored for diverse technical and non-technical audiences.

- Assisted in teaching a digital image processing course of 45 senior undergraduate engineering students.

MAY 2019 - AUG 2021 (FT)
General Dynamics Mission Systems - Canada
System Integration Engineer (EIT)

- Expanded team automation infrastructure (Python) to cover 80% of product functionality through requirement verification.

- Engineered solutions to high-priority firmware defects (C++) via code and device log investigations for RTOS based military devices.

- Developed and executed comprehensive test plans against complex configurations of subsystems: military radios, satellite/GPS receivers, Ethernet data/voice links, and network switches.

- Built, maintained, and deployed Docker containers and VMs, along with related network configurations to facilitate a consistent testing environment.

- Adhered to AGILE principles, actively participating in daily stand-up, bi-weekly SPRINT meetings, and spearheading PI planning sessions.

EDUCATION

SEP 2014 - JUN 2019 | **BSc in Electrical Engineering**
Electrical and Computer Engineering
University of Alberta

TECHNICAL SKILLS

LANGUAGES | Python, MATLAB, Java, Bash, C/C++, HTML, CSS

DEVELOPER TOOLS | VS Code, GIT, Vim, PyCharm, Confluence, GDB, Valgrind, GCC/Clang

TECHNOLOGIES | LaTeX, Linux, TCP/IP, Wireshark, TailwindCSS, Qt, JUnit, unittest, Robot Framework, Selenium, CORE, Docker, VMs, Java Swing

PROJECT MANAGEMENT | Github, GitLab, AGILE, SCRUM, KANBAN, IBM RQM/CCM

PROJECTS

Packet Sniffer | C

- IPv4 packet sniffer program created for Linux using libpcap.

- The user can specify the number of packets to capture and any tpcdump style filters by providing command-line arguments.

- The parsed packet output is well formatted and logged to a file.

Chess Engine | Java

- Java-based chess game with GUI using Java Swing toolkit.

- Features traditional chess gameplay for local players with minimax based AI.

- Project utilized Java OOP concepts and test-driven development (JUnit4).

Invoice Generator | Python

- Created a Python-based desktop application for professionally formatted PDF invoices.

- GUI was implemented using PyQt6.

- Application packaged using PyInstaller and Windows installer created with InstallForge.

- The PDF was created and formatted with fpdf2 Python library.