Ravindu Karunathilake

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KEY COMPETENCIES

- Experienced in software development, test automation, and data visualization.
- 2+ years of experience in RTOS integration and test automation development within an SAFe Agile business environment.
- 1+ years of graduate research experience developing design automation tools and implementing published design 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 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)

- Substantially expanded the team's test automation infrastructure (Python) capabilities to verify product requirements.
- 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.
- Developed a universal Python logging standard and wrapper library to streamline debugging.
- Built, maintained, and deployed CI pipeline, along with related network configurations to facilitate a consistent testing environment and code quality.

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, CMake
TECHNOLOGIES	LaTeX, Linux, TCP/IP, Wireshark, TailwindCSS, Qt, JUnit, unittest, Robot Framework, CORE Docker, VMs, Java Swing
PROJECT MANAGEMENT	Github, GitLab, AGILE, SCRUM, KANBAN, IBM RQM/CCM

PROJECTS

Tetris Game | C++

- The classic Tetris game recreated with C++20 using Clang and CMake tools.
- Game implements the original game music and custom keyboard controls.
- Project utilized the SFML multimedia library for implementing the game GUI.

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.

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.