

Ravindu Karunathilake



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CORE COMPETENCIES

- Experienced in software development, test automation, data visualization, and developing/executing comprehensive test plans.
- 1+ years of graduate research experience developing automated inverse design pipelines for PICs, and metasurfaces for application in LiDAR technology.
- 2+ years of experience in RTOS integration and test automation software development within a SAFe Agile business environment.
- 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
Computational Photonic Researcher

- 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.
- Engaged in bi-weekly presentation of research findings tailored to disseminate technical knowledge within the team.
- Assisted in teaching a digital image processing course of 45 senior undergraduate engineering students.

MAY 2019 - AUG 2021 (FT)

General Dynamics Mission Systems - Canada
SDET / System Integration Engineer II

- 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 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.
- Adhered to AGILE principles, actively participating in daily stand-up, bi-weekly SPRINT meetings, and spearheading PI planning sessions.
- Mentored junior members (5+) through code reviews, and pair-programming sessions.

EDUCATION

SEP 2014 - JUN 2019

BSc in Electrical Engineering

NANOTECHNOLOGY SPECIALIZATION

Electrical and Computer Engineering

University of Alberta

TECHNICAL SKILLS

LANGUAGES	Python, MATLAB, Java, Bash, C/C++, HTML, CSS
DEVELOPER TOOLS	VS Code, Git, Vim, GDB, Valgrind, Confluence, GCC/Clang, CMake
TECHNOLOGIES	LaTeX, Linux, TCP/IP, Wireshark, TailwindCSS, Docker, VMs, Robot Framework, CORE
PROJECT MANAGEMENT	Github, GitLab, AGILE

PROJECTS

Automated Photonic Designer | Metasurface

- Developed a Python based inverse-design pipeline for active photonic devices using FDTD and RCWA.
- Interfaced with electromagnetic solver API (ANSYS Lumerical)

FPV Drone Flight Controller | Hardware Design

- An STM32 based custom FPV drone FC designed from the ground-up with integrated blackbox and GPS.

Tetris Game | C++

- The classic Tetris game recreated using the SFML multimedia library with C++20.

TCP Server/Client | C

- A simple IP version agnostic stream server and client program designed to run on Linux based operating systems.

Packet Sniffer | C

- IPv4 command-line packet sniffer program created for Linux using libpcap.
- The parsed packet output is well formatted and logged to a file.

Chess Engine | Java

- Java-based chess game using Java Swing toolkit.

Invoice Generator | Python

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