

Bilal Dawood

+1 587-429-7635 | [Website](#) | [LinkedIn](#) | [Github](#) | Calgary, AB

EDUCATION

University of Calgary

Calgary, AB

BSc in Electrical Engineering, Minor in Digital Engineering — GPA: 3.64

Aug. 2019 – May 2024

Courses: Advanced Applied AI and ML, Computer Organisation, Application Specific Processors and Accelerators

EXPERIENCE

Digital Hardware Engineer (intern)

May 2022 – Aug 2023

Ericsson Canada Inc

Ottawa, ON

- Achieved 70% reduction in Thermal verification time by developing an innovative automation tool using Python.
- Ensured accuracy by creating test cases and comparing recorded metrics manually with component datasheets.
- Confirmed data transfer compliance by identifying and recording Flash SPI timing parameters using Oscilloscope.
- Hands on experience with UART, JTAG, I2C and SPI with Ericsson radio boards.
- Took initiative to update and fix faulty spectrum analyzer by working directly with hardware vendor.

Android SDK/NDK Full-Stack Developer (Intern)

Feb 2023 – Aug 2023

Ericsson Canada Inc.

Ottawa, ON

- Enhanced backend data management by 57% for android app by creating 4 new classes and off-loading 80% of the data.
- Reduced page load times by 90% by implementing infinite scrolling, showcasing expertise in software optimization.
- Collected and analyzed 5G performance metrics using Qualcomm Network Testing Device, contributing to app development.

Treasurer

Aug 2020 – May 2022

IEEE UofC Student Branch Executive Council

Calgary, AB

- Managed and maintained branch accounts for professional associations.
- Developed financial strategies, ensured suitable funding for events, and advised on activity cost allocation.
- Presented data in a methodical format in front of other executive council members, demonstrating analytical thinking and proactive communication skills.

PROJECTS

Automated Transit Enforcement | Python, Git, Software Dev, Hardware Dev, OpenCV

Sept 2023 – May 2024

- Developed a comprehensive hardware block diagram to outline the integration and use of various hardware components.
- Conducted research and selected hardware components based on literature review, electric ratings, and cost to select optimal components while ensuring functionality and compatability.
- Reduced power consumption by 36% and memory utilization by 800% by implementing efficient triggers for sensors (LiDAR, GPS, camera) using a Python script on an RPi running Linux.
- Achieved 95% license plate recognition accuracy using PaddleOCR and a cloud-based LPR API.
- Achieved 93% mAP vehicle and pedestrian detection by utilizing YOLOv8 object tracking model with data collected and labeled locally.

Real-time Audio Filtering | C, ARM Assembly, STM MCU, Embedded Systems

Jan 2024 – May 2024

- Designed and implemented embedded real-time audio filter on the STM32F411 using C and ARM Assembly.
- Reduced filter sampling rate by 28% and reduced program size by 13.6% by utilizing block processing and ARM Assembly.
- Compared performance (speed, memory usage) and verified integrity of filter using Python Notebook.
- Utilized Direct Memory Access (DMA) to efficiently load and verify audio files on MCU, ensuring accurate data extraction and processing.

2D Image Convolution | C, Python, STM MCU, ARM Cortex-M4, DSP, Embedded Systems

Jan 2024 – May 2024

- Implemented various 2D Image filtering techniques using 3x3 kernels on STM32F411 using C.
- Displayed expertise with memory mapping by paying close attention to data access and boundary handling for image convolution.
- Created Python notebook to view images by decrypting binary file.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, MATLAB, JavaScript, HTML/CSS, Assembly (ARM, MIPS), Verilog

Frameworks: React, Node.js, Flask, FastAPI, Tensorflow

Developer Tools: Git, Gerrit, Linux, PuTTY, MS Azure, VS Code, PyCharm, Jira

Libraries: Pandas, NumPy, Matplotlib, Seaborn, Tkinter, Keras, OpenCV, Pillow, Scikit-learn

Design and Simulation: Cadence Allegro, MODELSIM, NI Multisim, PS:SE, Xilinx Vivado, Intel Quartus Prime, SIMULINK

Hardware Tools: Oscilloscope, Spectrum Analyzer, Multimeter, Solder, Power Supplies, STM MCU, Pynq Z2 FPGA, PIC MCU

Hobbies: Soccer, Badminton, Kick Boxing, Photography, Table Tennis

AWARDS

Jason Lang Scholarship(2020, 2021, 2023), **Dean's List**(2020, 2021, 2024)