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 2023*

Experience

Digital Hardware Engineer (intern) May 2022 – Aug 2023
Ericsson Canada Inc *Ottawa, ON*

- Achieved 70% reduction in Thermal verification time by developing an automation tool using Python.
- Ensured accuracy by creating test cases and comparing recorded metrics manually with component datasheets.
- Showcased report writing and presentation skills by preparing user manual and presenting results to management.
- Ensured rating compliance by verifying power rail integrity on high voltage radio boards using Power Tree and multimeter.
- Conducted board bring-up and verification by identifying and recording Flash SPI timing parameters using Oscilloscope.
- Supported PCB design verification and enhancements using Cadence Allegro and existing radio board schematics.
- Hands on experience with various hardware peripherals UART, JTAG, I2C and SPI with Ericsson radio boards.

Android SDK/NDK Full-Stack Developer (Intern) Feb 2023 – Aug 2023
Ericsson Canada Inc. *Ottawa, ON*

- Enhanced backend data management by 57% for app by creating 4 new classes and off-loading 80% of the data.
- Reduced page load times by 90% by optimizing app performance, 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.
- Prepared and submitted Annual Budget reports and Financials.
- 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* Sept 2023 – May 2024

- Developed a comprehensive hardware block diagram to outline the integration and use of various 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% by developing a proof-of-concept with RPi and integrating LiDAR/GPS sensors through serial connections and GPIO pins
- Reduced memory utilization and processing time by 800% by setting appropriate triggers through embedded designing
- Regularly shared progress with Calgary Transit, explaining tehcnical details in easy to undestand manner.
- Integrated hardware components with the software server, ensuring smooth data transfer and system operation.
- Conducted extensive testing to ensure system reliability and performance under various operational conditions.

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% through optimization techniques involving block processing and use of ARM Assembly.
- Created Python notebook to verify integrity of signal after filtering.

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.
- Implemented convolution techniques to filter images with careful data access and boundary handling.
- Demonstrated expertise in digital signal processing and embedded systems.

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

Awards

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