Bilal Dawood

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Education

University of Calgary Calgary, AB
BSc in Electrical Engineering, Minor in Digital Engineering — GPA: 3.64 *Aug. 2019 – May 2024*
Coursework: Analog Electronic Circuits, Digital Electronic Circuits, Electrical Engineering Energy Systems

Experience

Digital Hardware Engineer (Intern) May 2022 – Aug 2023
Ericsson Canada Inc *Ottawa, ON*
- Verified digital circuit designs using Cadence Allegro, leveraging existing radio board schematics.
- Achieved 70% reduction in Thermal verification time by designing and developing a derating automation tool in Python.
- Created test cases to verify and debug tool output, showcasing analytical and debugging skills.
- Delivered technical presentation to hardware teams, leading to successful company-wide tool adoption.
- Ensured electrical functionality by verifying power rail integrity on high voltage radio boards using multimeter.
- Hands-on experience with UART, JTAG, I2C and SPI protocols on Ericsson radio boards.
- Verified signal integrity and timing on radio boards using oscilloscope and PuTTY, ensuring digital circuit performance met design specifications.

Android SDK/NDK Full-Stack Developer (Intern) Feb 2023 – Aug 2023
Ericsson Canada Inc. *Ottawa, ON*
- Developed and optimized an Android app using JavaScript, React Native, C++, and C.
- Managed tasks with Jira and ensured code quality through continuous debugging and peer reviews using Gerrit.
- Reduced page load times by 90% by implementing infinite scrolling, showcasing expertise in software optimization.
- Collected and analyzed 5G performance metrics (throughput, error rate) contributing to app development.

Electrical Team Lead Sept 2021 – Sept 2022
Team Zeus *Calgary, AB*
- Developed comprehensive and easily comprehendible documents for modifications on an electric motorcycle.
- Collaborated with other technical teams to integrate electrical systems into the vehicle.
- Performed multiple drafting tasks and ensured synchronous data-keeping for all electrical sub-teams.
- Assisted in designing and testing Battery Management System (BMS) and Electrical Control Unit (ECU).
- Gained an understanding of principles of bike operation and learned about workshop safety practices.

Projects and Courses

Automated Transit Enforcement | *Python, Git, Software Dev, Hardware Dev, OpenCV* Sept 2023 – May 2024
- Led the design and development of an automated enforcement system for bus-only lanes, integrating embedded hardware (Raspberry Pi, GPS, LiDAR) and machine learning (YOLOv8) to enhance public safety and optimize transit operations.
- Conducted research for component selection based on literature, electric ratings, and cost while ensuring functionality and compatability.
- Achieved a 36% reduction in power consumption through embedded programming and sensor integration.
- Designed multi-purpose hardware enclosure using SOLIDWORKS for both in-bus and on-street application.
- Performed extensive testing to ensure system reliability and performance under various conditions.
- Regularly shared progress with Calgary Transit, explaining technical details in easy to understand manner, showcasing strong oral and written communication skills.
- Prepared documentation outlining technical specifications, system performance and actionable insights for future implementation.

AM Receiver System Design | *Analog Circuit Design, Multisim, Simulation* Oct 2021 – Dec 2021
- Designed and implemented an AM receiver system in NI Multisim, focusing on analog circuit design and signal processing.
- Developed active filter and base-band amplifier circuits for improved signal clarity.
- Used parametric sweeps and AC analysis to optimize circuit performance.
- Used NI Multisim to verify circuit design and confirm theoretical calculations.
- Documented the design, methodology, results, and analysis of the projects in detailed reports.

Technical Skills

Hardware Tools: Thermocouple, Oscilloscope, Spectrum Analyzer, Multimeter, Solder, Power Supplies
Design and Simulation: Cadence Allegro, MODELSIM, NI Multisim, PS:SE, Intel Quartus Prime, SIMULINK
Languages: VHDL, Java, Python, C/C++, MATLAB, JavaScript, HTML/CSS, Assembly (ARM, MIPS)
Developer Tools: Git, Gerrit, Linux, PuTTy, MS Azure, VS Code, PyCharm, Jira

Awards

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