Mohammad (Wajih) Alam

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PERSONAL STATEMENT

Highly accomplished and self-motivated professional bringing 6+ years of invaluable experience as an embedded engineer, product design & development, technical writing, Research & Development. Demonstrated strengths in team collaboration and problem solving.

SKILLS SUMMARY

- Arm architecture (STM32, Nrf52, Ti)
- Schematics, PCB layout & evaluation
- Circuit design & analysis
- Troubleshooting and debugging
- Embedded hardware
- Altium, Eagle
- RF systems, optical systems
- Technical documentation
- C, Python, C++, SQL, Matlab, HTML, CSS
- Windows 7/8/10/Linux (Ubuntu)
- RTOS
- Product development & project management

PROFESSIONAL EXPERIENCE

Embedded Software Developer | General Motors (RampGroup), Markham, ON **NOV 2021 – Present**

- Lead cross-functional automation and engineering team to execute project efficiently.
- Led a vital role within the display bring-up team, ensuring on-time achievement of target deadlines and the delivery of defect-free displays.
- Collaborated closely with internal and external stakeholders, fostering seamless communication among cross-functional teams to meet expected functionalities and requirements.
- Utilized key tools including RTC, Gerrit, and Jira to proactively address defects and issues, ensuring timely resolution and effective code collaboration.
- Implemented proactive measures to sustain continuous operational efficiency of delivered services and framework, swiftly identifying and resolving issues to prevent future failures.

Embedded IoT Developer | Argentum Electronics, Toronto, ON **SEP 2021 – NOV 2021**

- Developed a robust WiFi mesh and developed real-time embedded IoT products including OTA firmware upgrade.
- Interfaced with AWS (amazon web-services), RTOS techniques (ESP-IDF), Hardware/Firmware testing.
- Regular participation in Code reviews. Use of Git version control. Daily participation in Scrum meetings.

Embedded Software Engineer | Facedrive, Scarborough, ON **NOV 2020 – SEP 2021**

- Developed a BLE (Bluetooth Low Energy) based portable, wearable, battery powered, data capture device for contact tracing using arm based Nordic chipset (nrf52).
- Wrote low-level library and drivers to integrate external flash, accelerometer onto the Nordic based system utilizing SPI and I2C protocol.
- Implemented functionality of different vibration patterns, external flash for TraceScan wearable device by writing low-level software for BLE device and ensuring that the written code is compatible with the existing code base.
- Utilized Segger embedded toolchain for testing and debugging system-level issues using JTAG and UART for debug.
- Complete use of version control (Git) to update firmware.
- Collaboration with diverse teams to ensure integration of drivers and peripheral software.

Research Assistant cum Embedded Engineer | MPPLAB, University of Saskatchewan, Saskatoon, SK **MAY 2016 – OCT 2020**

- Developed a wireless heartbeat and temperature monitoring system using STM32-F4 series and STMCUBE IDE as the toolchain (personal project -PP).

- Wrote low-level drivers as well as used HAL to work with GPIO, PWM, UART, SPI, I2C and Timer peripherals for STM32 (PP).
- Developed a miniaturized swallowable wireless capsule endoscopy system using SMT components, Altium & Eagle.
- Developed a data logger system based on STM32, ESP32 and ThingSpeak (PP).
- Used python for analysis of captured data optimized for low power consumption.
- Utilized Nordic RF transceiver (nRF24L01) and raspberry pi to transmit the captured data to an external data logger.
- Experience with simulation tools, such as: Matlab, HFSS, REMCOM, Sim4Life, SEMCAD, or equivalent.
- Integrated Internet of Things (IoT) in the capsule endoscopy system using Raspberry Pi, microcontroller & sensors.
- Designed and developed analog, digital or RF circuits including simulations, schematics, PCB layout and evaluation.
- Worked collaboratively with members from various discipline in successfully completing multiple projects resulting in multiple technically written peer-reviewed journals. Google scholar link: http://bit.ly/303LzQ8
- Aligned with multiple project managers, to spearhead and coordinate multiple projects from implementation to closure; while continuing to support project management best practices and tools.
- Played instrumental role in spearheading all technical aspects of high-profile project featured in international news.
- Used Solidworks to design enclosure of the WCE system while ensuring the device complies with set regulations.

Research Assistant | EMMRI LAB, University of Ulsan, South Korea **MAR 2014 – FEB 2016**

- Designed a novel system for Aqua culture which is suitable for shrimp farming using embedded C.
- Designed and developed multiple antennae for wireless body area network application.
- Ensure that the developed devices comply with international safety standards.
- Prepared and administered whole project, requisitioned project supplies and equipment, while closely monitoring expenses within tight budget.
- Worked to developed novel methods to implement a system which utilized custom-designed RF coils to improve the imaging of brain.

Innovation Business Analyst | Innovation Enterprise, University of Saskatchewan ***(Part-time)*** **MAR 2018 – JUL 2020**

- Assess the market potential of technologies developed at the University and build a commercialization plan for it showing substantial and tangible market traction.
- Evaluating commercial opportunities stemming from University research.
- Technology validation, market assessment, competitive analysis.
- Business case development, business modeling and business planning.

Vice-President Finance and Operations | GSA, University of Saskatchewan, Saskatoon, SK ***(Part-time)*** **MAY 2019 – APR 2020**

- Assumed the leadership role while collaboratively working with internal and external teams to facilitate quality improvement initiatives across the association.
- Built, maintained, and monitored relationships within the organizations and with social clubs at University as well as the City of Saskatoon.
- Represented GSA on various boards, including but not limited to: City of Saskatoon, Cultural programs, various events.
- Overseeing the GSA's finances and internal operations. This includes maintaining financial records, monitoring income and expenditures, and working closely with the GSA office manager to coordinate the operation of the GSA commons.
- Recruited and supervised GSA coordinators while overseeing training and work schedules.
- Created and maintained a knowledge base of experiences that will be used to assist future projects at the association.

RELEVANT TOOLS

Operating System: Windows, Linux (Ubuntu, Debian)
Programming Language: Python, Java, Javascript, HTML, CSS

- Keras and Tensorflow, Python GUI Tkinter, OpenCV, Matplotlib, Pandas, etc.

Relevant software: STM32CubeIDE, Segger Embedded toolchain, Proteus, Altium Designer, Eagle, SolidWorks, Remcom XFDTD, HFSS, SEMCAD, Sim4Life, Altera Quartus, MS Office, Visio, Photoshop, Pycharm, Cadence EDA tool, or equivalent.
Hardware Platform: Raspberry Pi, Arduino Uno, STM32, ARM cortex, Nordic NRF52 chipsets, PIC microcontroller, J-Link, etc.
Language: English, Nepali, Hindi, Bengali, Urdu, Arabic (Read and Write), Korean (Read and Write)

EDUCATION AND PROFESSIONAL CERTIFICATION

Electrical and Computer Engineering, PhD • *University of Saskatchewan, Saskatoon, SK* *JUL 2020*
Professional Skills Certificate, Graduate • *University of Saskatchewan, Saskatoon, SK* *APR 2019*
Teaching & Philosophy, Graduate Certificate • *University of Saskatchewan, Saskatoon, SK* *APR 2019*
Biomedical Engineering, MSc • *University of Ulsan, Ulsan, South Korea* *FEB 2016*
Electrical and Electronic Engineering, BSc • *CUET, Bangladesh* *OCT 2013*
Physical & Mental First Aid, CPR, WHMI, Certificate • *Various Organizations* *NOV 2019*

RELEVANT VOLUNTEER EXPERIENCE

Bus Rapid Transit Stakeholder Committee, Member • *City of Saskatoon* *NOV 2019-APR 2020*
Budget and Finance Committee, Chair • *University of Saskatchewan, Saskatoon, SK* *MAY 2019- APR 2020*
Bursary Selection Committee, Chair • *University of Saskatchewan, Saskatoon, SK* *MAY 2019- APR 2020*
Research, Scholarly & Artistic Work, Member • *University of Saskatchewan, Saskatoon, SK* *MAY 2019- APR 2020*