

Yamaan Bakir

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Education

Western University

Sep 2020 – Apr 2025

Bachelors of Engineering Science – Mechatronics Systems Engineering - 3.8 GPA

Ivey HBA – Honors Business Administration

Awards: Dean's Honors List, Western Admission Scholarship

Experience

Tesla, *Vehicle Software Intern - Systems Integration*

May 2023 – Aug 2023 | Palo Alto, CA

- Designed and developed Python application automating antenna testing reducing test time by 50% and errors by 10%
- Collaborated cross-functionally to deploy authentication stack on the Cybertruck platform and owned the integration of several key hardware and firmware components
- Created a firmware routine in C to streamline the key pairing process reducing the time taken to pair a key to vehicles by 150%
- Diagnosed firmware bugs by analyzing various vehicle data logs and performing queries on fleet-wide databases using Spark

FSAE Western Formula Racing, *Electrical & Software Team Lead*

Sep 2020 – Present | London, ON

- Developed a new distributed ECU architecture for the 2024 season reducing cross-car wiring by 70%
- Developed the firmware and hardware for a distributed sensor system with CAN Bus communication reducing sensor wiring by 40%
- Designed and implemented a data acquisition infrastructure on a Raspberry Pi using Python in order to monitor and analyze vehicle performance
- Designed schematic and layout for dual-supply power distribution module allowing for power redundancy
- Implemented a new task tracking system as the program manager for the 2023 season reducing management workload
- Introduced new documentation for faster recruit onboarding, reducing onboarding time by 50%.

Lawson Health Research Institute, *Biomedical Engineering Intern*

May 2022 – Aug 2022 | London, ON

- Designed the schematic and layout for a motor control PCB that reduced wiring by 90%
- Developed control firmware in C for communication with research equipment
- Performed over 20 experiments using Stewart-Platform robots validating several simulated models
- Collaborated with researchers from multiple universities including Macquarie University and The University of Waterloo

Western University, *Student Teaching Support Intern*

Jun 2021 – Aug 2021 | London, ON

- Orchestrated a large-scale project engaging 800 students in constructing Arduino-powered chemical reaction control systems; fostering hands-on learning with a focus on practical application
- Created lesson material based on engineering first principles and the engineering design process

Projects

wikiNow, *Hack Western, Co:here Award & Organizer's Choice Award Winner*

- Created a web app that uses machine learning to generate an entire tutorial article in the wikiHow format
- Used natural language processing and Stable Diffusion models to generate articles based on user prompt
- Developed the backend in Python using Flask and the frontend using React and Next.JS
- Won the top sponsor award for best use of natural language prompt engineering and placed in the top 10 projects

Western Engineering Support Bot, *Discord bot for helping students stay organised*

- Developed a *Discord* chat bot using Python to help first year students struggling to stay on task during the pandemic
- Created an automated system for generating weekly course schedules that has helped over 2000 students stay on track

Technical Skills

Programming Languages: Python, C, C++, Java, MATLAB/Simulink, Javascript

Software Tools: Git, CI/CD, Unix/Shell Scripting, Linux, STM32CubeIDE, FreeRTOS, Grafana, PlatformIO, Excel

Electrical Design: Altium Designer, KiCad, Schematic Capture, SPICE Simulation, PCB Layout, Power Conversion, Microcontroller Implementation, Serial Communication (CAN, SPI, UART, I2C)

Debugging: Prototype Bring-Up, Logic Analyzers, Oscilloscopes, Multimeters, Soldering