

Yamaan Bakir

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🔗 <https://www.yamaanbakir.com/>

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