Yamaan Bakir

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Education

Western University, *BESc – Mechatronics Systems Engineering*   Sep 2020 – Apr 2025

Awards: Dean's Honours List, Western Undergraduate Summer Research Internship, Western Summer 2021 Student Teaching Support Internship , Western Admission Scholarship

Ivey Business School, *HBA – Honours Business Administration*   Sep 2022 – Apr 2025

Experience

Tesla, *Vehicle Software Intern - Systems Integration*   May 2023 – Aug 2023 │ Palo Alto, CA
- Developed an application in Python to automate antenna testing to simplify and streamline the process reducing testing time by 70% and reduce error rate by 10%
- Worked with various teams to bring up the authentication stack on the Cybertruck platform and managed the resolution of software and hardware issues
- Created a firmware routine in C to streamline the key pairing process reducing the time taken to pair a key to vehicles
- Diagnosed firmware bugs by analyzing various vehicle data logs and performing queries on fleet-wide databases.

FSAE Western Formula Racing, *Electrical & Software Team Lead*   Sep 2020 – present │ London, ON
- Developed a distributed sensor data acquisition system with CAN Bus communication reducing sensor wiring by 70%
- Designed a new power distribution module with dual power supply switching providing power redundancy
- Implemented a new task tracking system as the program manager for the 2023 season reducing management workload
- Pioneered new documentation to help onboard recruits, reducing onboarding time by 50%
- Implemented the 2022 wiring harness and solved packaging conflicts with other team leaders

Lawson Health Research Institute,   May 2022 – Aug 2022 │ London, ON
Biomedical Engineering Research Intern
- Developed a custom motor control board reducing overall space consumption and wiring by 90%
- Developed control firmware in C for communication with research equipment
- Debugged PCBs by examining behavior with an oscilloscope, allowing for repair rather than disposal
- 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
- Redesigned Western's ES 1050 Design course while collaborating with its stakeholders improving the student satisfaction rate by 25%
- Spearheaded development of a project for students to work on that incorporated software, mechanical, and chemical engineering skills to broaden the scope of their design skills in first year. The project has been completed by over 850 students

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 that creates automated scheduling to help first year engineering students at Western University stay on task
- By creating schedules, answering frequently asked questions, and providing other support, Support Bot has been used by over 2000 students and has been contributed to by the open-source community

Technical Skills

Hardware: Microcontrollers, PCB Design, CAD/CAM, CNC Manufacturing, Hardware Validation, 3D Printing
Software: C/C++, Python, RTOS, Java, JavaScript, Arduino, HTML/CSS, Flask, Scripting, React, AI/ML tools
Tools: Solidworks, Altium Designer, Git/Github, Microsoft Suite, Excel, Unity