

# Yamaan Bakir

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## Technical Skills

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- **Hardware Engineering:** PCB Layout & Design, Hardware Validation, 3D Printing, MCUs, I2C, CAN Bus
- **Software Engineering:** Java, Javascript, C/C++, Python, Matlab, HTML/CSS, Flutter
- **Design Tools:** Solidworks, Altium Designer, Git/Github, Figma, Microsoft Suite, AutoCad

## EXPERIENCE

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**Lawson Health Research Institute** | Biomedical Engineering Research Intern – *London, ON* May 2022 – Present

- Developed a custom triple-motor driver board and wrote control algorithms for position control. Reduced overall space consumption and wiring by 90%. Control Code developed In C
- Troubleshooted PCBs by examining behaviour with an oscilloscope, allowing for repair rather than disposal
- Performed over 20 experiments using Stewart-Platform robots validating several simulated models

**Western Formula Racing** | Grounded Low-Voltage Sub-team Co-Lead May 2020 – Present

- Lead the development for vehicle control unit software, allowing for the safe operation of the vehicle
- Implemented the 2022 wiring harness and resolved packaging conflicts with other team leaders
- Elected to oversee the redesign of the low voltage control system for the 2023 design cycle
- Collaborated with other team members to troubleshoot and resolve wiring issues.

**Western Undergraduate Engineering Society** | Mechatronics Representative Sept 2021 – April 2022

- Oversaw more than \$500,000 worth of capital and disbursements therefore providing new equipment to over 100 students
- Mobilised student leadership to evoke policy change in the availability of online educational content for students struggling to adjust back to in-person learning

**Western University** | Student Teaching Support Intern – *London, Ontario* June 2021 – August 2021

- Developed Western's ES 1050 Design course while collaborating with its stakeholders
- 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. Completed by over 850 students

## Projects

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**Western Engineering Support Bot** | Discord bot for helping students stay organised ([Github Repository](#))

- Written in Python, Support Bot takes the ambiguity out of being a Western Engineering student
- Automatically creates a weekly task list for first year students
- Answers student questions about what is due for a given course
- Used by over 1,700 engineering students.

**Spartan Robotics 2019 Robot Code** | Robot Code for the 2019 FIRST Robotics Competition ([Github Repository](#))

- Designed and implemented position hold algorithm for holding robotic wrist in place using PID and sin feedforward
- Collaborated with several other programmers using Git to integrate of code from multiple programmers
- Team placed 7th out of 32 at the York Regional event and placed in the 1st alliance at the Western Regional Event

**FRC Scouting Application** | Centralised off-line scouting application for FIRST Robotics Competition ([Github Repository](#))

- Java based Android app for collecting match data at FIRST Robotics Competition events
- Devices send match data to a computer running a Python script which compiles each device's match data into one large database

## Education

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**Western University | Ivey Business School** Sept 2020 – April 2024

BESc – Mechatronics Systems Engineering | HBA – Business Administration - 3.9 GPA

**Awards:** *Dean's Honours List, Western Undergraduate Summer Research Internship (USRI), Western Summer 2021 Student Teaching Support Internship*