Brandon Jahoor

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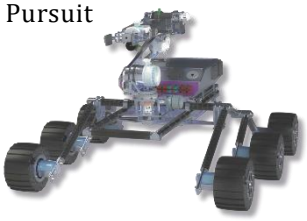
Candidate for BASc in Mechatronics Engineering Honours, Minor in Computer Engineering, University of Waterloo

Skills



- **Robotics & Perception:** ROS2/ROS, Foxglove, Gazebo, OpenCV, kinematics (FK/IK), RealSense, Pure Pursuit
- **Embedded & Controls:** Raspberry PI, STM32 (C), ESP32, PLC ladder logic, FPGA/VHDL
- **Software & Tools:** C++, Python, Docker, GitHub, Linux/Ubuntu, MATLAB, DSA
- **Prototyping:** CAD(SolidWorks), 3D printing, electrical & mechanical assembly, testing, validation

Experiences

Robotics Research Assistant *– University of Waterloo RoboHub* *(September 2025 - December 2025)*

- Syncing Xsens Awinda **IMU**s with **7-axis robotic arm** (Emika Panda's) in **ROS2** to **mirror human arm motion**.

Robotics Engineering *– University of Waterloo Robotics Team (Co-op)* *(June 2025 - August 2025)*

- Developed **ROS2 Realsense** RGB & depth stream with compression and dynamic resolution selection; added **OpenCV** processing.
- Modeled 6-wheel rocker-bogie rover drivetrain; solved **forward & inverse kinematics.**

Robotics Engineering *– BHF Robotics (Co-op)* *(May 2025 - June 2025)*

- Implemented **ROS2 autodrive** routine; trained **deep learning AI** model for autonomous farming robot's weed/crop detection.
- Diagnosed electrical issues and **restored robotic controls**; contributed to part design & simulation for prototyping/manufacturing.

Mechatronics Engineering *– RAB Design Lighting (Co-op)* *(September 2024 - December 2024)*

- Validated and tested **lighting controls app**; authored app manual and training materials ensuring **successful app launch**.
- Regularly used **SolidWorks/AutoCAD** for design/documentation; produced engineering deliverables & process improvement tools.

Quality Assurance Engineering *– Ontario Drive & Gear (Co-op)* *(January 2024 - April 2024)*

- Lead QE on **prototype new product launch** under extraordinary deadlines; recognized with AGMA Foundation **Scholarship.**

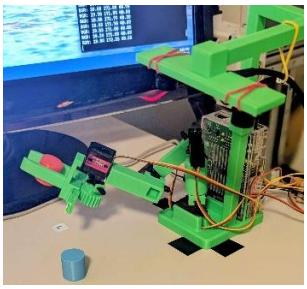
Electrical Engineering *– Jule/eCAMION (Co-op)* *(February 2022 - June 2022)*

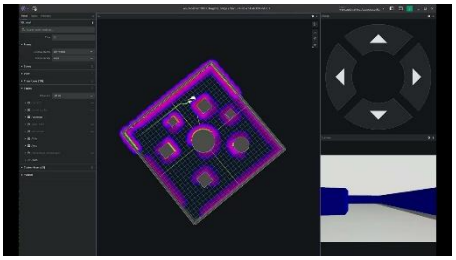
- Supported electrical, design, software, & quality **engineering functions** and **assembled & wired** EV fast-charging systems.

Youth Robotics Mentor *– FIRST Robotics - First Lego League (FLL)* *(January 2021 - December 2023)*

Projects

- **WATonomous:** ROS2 navigation in Docker & Foxglove; LiDAR integration: A* path planning and Pure-Pursuit control.
- **SWARM Robots:** Assembled fleet of HeRo 2.0 robots (including smd soldering) with ESP32, ROS2, Docker, Gazebo.
- **3-DOF Robotic Arm:** Raspberry Pi; designed 3D-printed arm & manipulator; OpenCV colour token sorting in ROS2.
- **C Operating System:** Developing custom OS in C using STM32 Nucleo-64.
- **PLC Controls:** Programmed Siemens PLC (ladder logic) to control motors, sensors, & buttons.
- **Rubik's Cube Solver:** Built EV3 robot using RobotC; integrating Python solving algorithm.
- **Retro Arcade Console:** Fully functional Raspberry Pi powered arcade retrofit.
- **Motorized Bicycle:** Engineered motorized (gas) bicycle retrofit using metal cutting, welding, drilling.





For more information, please visit my website portfolio: bjahoor.github.io