

Brandon Jahoor

bjahoor@uwaterloo.ca
linkedin.com/in/bjahoor
bjahoor.github.io

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, and validation

Experiences

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

- Syncing Xsens Awinda IMUs 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, and 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, and drilling skills.

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