Maurice-Roland Capitulo Ampane

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Availability: Full Time Starting May 2026

EDUCATION

Olin College of Engineering **Needham, MA**
Bachelor of Science: Mechanical Engineering (Robotics, GPA: 3.82) May 2026

- Relevant Coursework: Computational Robotics (Python / ROS2), Machine Learning (Python), Software Design (Python), Software Systems (C), Probabilistic Robotics, Controls, Modern Robotics: Mechanics, Planning, and Control
- Introduction to Computational Robotics Course Assistant

SKILLS

Languages & Frameworks: ROS2, Python, C++, C, Git, MicroROS, Java, Tensorflow, MATLAB
Tools & Platforms: Linux, Microcontrollers, Raspberry Pi, Jira, Wireshark, Simulink
Web Development: HTML, CSS, Flask, Django, Markdown
Other & Personal Interests: Resident Assistant, Eagle Scout, Poker, Fire Arts, Dance

EXPERIENCE

Reframe Systems **Andover, MA**
Robotics Software Intern Summer 2025

- Implemented ROS2 to CAN firmware using MicroROS and C++ on a Teensy 4.1 to unlock BLDC motors and force-torque sensing for the next generation of end of arm tools for automated modular housing construction
- Used force-torque sensing to home motor axis, reduce points of failure, and prevent end of arm tool damage
- Integrated end of arm tool electronics to control motors and efficiently packaged relevant components

6 River Systems (Ocado Group) **Waltham, MA**
Robotics Software Intern Summer 2024

- Engineered a robot detection system incorporating C++, Python, and ROS2, enhancing real-time operational efficiency and accuracy improving overall system responsiveness to environmental changes
- Developed a simulation in Gazebo and utilized RViz2 for rapid prototyping and optimization of the detection system
- Implemented the detector in C++, achieving over an 80% reduction in CPU usage, optimizing performance

Olin Electric Motorsports (Formula SAE Electric) **Needham, MA**
Accumulator Subteam Lead Summer 2023 - Summer 2024

- Directed a team of 12 engineers in the development and manufacturing of a 6-segment, 400-volt modular battery pack, specifically engineered to power a high-performance Formula-style electric vehicle
- Oversaw the design and fabrication of 4 critical subsystems, to ensure optimal performance and reliability

PROJECTS

Open Duck Mini | Python, Raspberry Pi, ONNX, IMU

- Built and integrated an open source 14 DOF biped using IMU data and foot switches for a robust walking policy
- Debugged complex integration issues across mechanical, electrical, and control subsystems
- Tuned joint-level control and current limits to improve walking reliability and protect hardware

Machine Tending Kinova Gen3 | C++, Python, ROS2, MoveIt2, Arduino

- Implemented robust pick and place loop with Kinova Gen3 arm for automated part manufacturing using MoveIt2
- Modeled the workspace with collision objects to generate collision-free trajectories and feasible grasp poses
- Interfaced with a PLC over an Arduino and relay using 1 C++ and 2 Python ROS2 nodes to control a CNC mill

Voice-Operated Robot Assistant | Python, ROS2, TensorFlow, AprilTags

- Configured a TensorFlow neural network to identify 4 unique voices based on spectrogram data
- Leveraged Google Speech-to-Text to drive the robot, enabling robot positioning and item retrieval
- Employed AprilTags and YOLO v8 for precise item identification, complemented by SORT for efficient item tracking