Sebastian Baldini

Worcester, MA, 01609

sebastian.baldini@outlook.com | (603) 321-1577 | Github.com/somguynamedseb | linkedin.com/in/sebastian-baldini

SUMMARY

Robotics Engineering major with a Computer Science Minor, currently pursuing a Master's degree at Worcester Polytechnic Institute. Seeking internships and co-op opportunities to apply skills in aerospace systems and defense, particularly in design, analysis, and software development.

SKILLS

C++, Python, MATLAB, Robot Operating System (ROS), Computer Vision, Dynamics, Soft Robotics, Embedded Systems, Mechanical Systems, Simulation, Software Testing, Tool Development, 3D Printing, Fusion 360, EAGLE PCB, Solidworks Associate

WORK EXPERIENCE

PEAR Lab WPI   **Aug 2024 - Present**
Drone Controls and Simulation Lead   *Worcester, MA*

- Programmed trajectories for drone interception of flying objects
- Integrated and improved internal simulation tools for enhanced drone perception
- Developed control systems using Robot Operating System (ROS) for drone operations

Soft Robotics Lab WPI   **Aug 2024 - Present**
Undergrad Researcher   *Worcester, MA*

- Developed custom embedded sensors and encoders for robotic applications
- Researched soft body alternatives for modern mechanical systems
- Maintained lab equipment and assisted in the development of soft body components

WPI Makerspace   **Aug 2024 - Present**
Prototyping Lab Assistant   *Worcester, MA*

- Operated and managed 3D printers, CNC routers, and laser cutters for student projects
- Assisted students in design and operation of FDM 3D printers

Sig Sauer   **May 2024 - Aug 2024**
Robotic Weapon Systems and Testing Intern   *Newington, NH*

- Contributed to mechanical and electrical design for automated weapon systems
- Developed custom computer vision tools for testing and evaluation
- Managed and designed parts for machining and SLS laser printing

Robotic Materials Group   **Aug 2023 - May 2024**
Undergrad Research Assistant   *Worcester, MA*

- Led research on novel encoding utilizing multi-material FDM printing
- Developed a soft robotic quadrupedal robot with high resistance to physical damage
- Investigated flexible conductive filaments for sensing and robotics applications

WPI Frontiers Pre-Collegiate Program   **Jun 2023 - Aug 2023**
Residential Program Assistant   *Worcester, MA*

- Provided high school students with a college-like experience
- Assisted in managing events to ensure a safe and memorable experience

Millenium Slate   **May 2022 - Aug 2022**
Intern Production Assistant   *New Hampshire*

- Assisted in prototyping new industrial production lines
- Supported PLC debugging and FANUC robotic arm programming

PROJECTS

                                                                                 Dec 2023 - Present
Face Following Webcam

- Created a custom solution to motorize a camera for face tracking
- Utilized OpenCV and Ultralytics for video processing and object detection
- Implemented multithreading on a microcontroller for optimized communication

                                                                                 Nov 2023 - Dec 2023

Team Lead, Intro AI Class Project
- Led team in developing lecture attendance tracking software using computer vision
- Developed UI for photo and video intake to track attendance
- Created backend prototype for database to analyze attendance data

Nov 2023 - Dec 2023

Industrial Robotics Class Project
- Programmed a 6-DOF ABB arm with PLC control for object manipulation
- Utilized programming to simulate robot behavior before real-world testing
- Optimized motion paths to avoid singularities for consistent operation

Nov 2023 - Dec 2023

ROS Robot with LiDAR Path Planning and Exploration
- Programmed a robot using ROS for exploration of unknown maps
- Implemented A* algorithm for frontier exploration
- Utilized LiDAR to create 2D maps and solve navigation problems

Aug 2023 - Oct 2023

Robotic Arm Programming and CV Integration
- Derived kinematics for robotic arm control
- Programmed motion for object manipulation
- Integrated camera for object detection and organization

Mar 2023 - May 2023

Multi-Robot Communication and Maze Navigation
- Programmed three robots for autonomous maze navigation
- Utilized MQTT for inter-robot communication
- Employed sensors to locate buttons and read QR codes

Aug 2022 - Oct 2022

Autonomous Pseudo-Solar Panel Replacement
- Designed custom gripper for solar panel-like objects
- Programmed robot for autonomous navigation and task completion
- Assessed carry weight based on gear ratios and motor power

Jan 2021 - May 2021

Custom Brushless Motor Controller
- Researched and assembled a custom brushless motor controller
- Programmed Arduino for efficient motor operation
- Designed custom PCB and tested on a breadboard

EDUCATION

Worcester Polytechnic Institute   **Sep 2021 - May 2025**
Bachelor of Science in Robotics   *GPA: 3.5*

Worcester Polytechnic Institute   **May 2025 - May 2026**
Master of Science in Robotics

CERTIFICATIONS

Solidworks Associate