PHILLIP A. JOHNSON III

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https://pjohn1.github.io/portfolio/ ▪ https://www.linkedin.com/in/pj-iii/

Skills: Python, C++, ROS, Linux, GitHub, MATLAB, Feedback Control, Sensor Fusion, ML, Computer Vision

EDUCATION

Cornell University **Ithaca, NY**
Master of Engineering in Mechanical and Aerospace Engineering Expected May 2026
- Relevant Coursework: Machine Learning, Robot Learning, Multi-Agent Coordination, Model-Based Estimation, Optimal Control (w/ Reinforcement Learning), Autonomous Mobile Robots

Massachusetts Institute of Technology **Cambridge, MA**
Bachelor of Science in Aerospace Engineering Sep 2020 – May 2024
- **GPA: 4.7/5.0**
- Relevant Coursework: Robotics, Feedback Control, Autonomy & Decision Making

EXPERIENCE

The Aerospace Corporation **El Segundo, CA**
Technical Intern IV – Flight Loads Team June 2023 – Aug 2023
- Utilized web-interfacing Python libraries to create dashboards to support day-of-launch procedures and loads analysis
- Simulated the day-of-launch process with a custom Python script mimicking simulation outputs
- Hosted department-wide briefs to discuss tool functionalities and gather feedback
- Successfully supported a launch using the tools that I created

Predicting Space Debris Population through Deep Neural Networks, ARCLab, MIT **Cambridge, MA**
Research Assistant Feb 2023 – May 2023
- Predicted space debris populations by developing a Physics Informed Neural Network in Python with TensorFlow trained on Monte Carlo simulation outputs, advised by Dr. Richard Linares
- Optimized the model through hyperparameter adjustment and data preprocessing
- Accelerated model training through use of the MIT Supercloud High Performance Computing center
- Aided in creation of a conference abstract for a presentation presented to the Space Capacity Workshop 2023

Northrop Grumman Corporation **Chandler, AZ**
Guidance, Navigation, & Control Intern June 2022 – Dec 2022
- Supported the 6DOF Simulation team by updating C++ drivers and completing Jira-enabled sprint tasks
- Created a Python script that reduced the number of coding standard violations by approximately 13,000 lines

Spin Ap, Space Systems Laboratory, MIT **Cambridge, MA**
Research Assistant Sep 2021 – Jan 2022
- Designed a GUI displaying data from actuators and sensors in the SpinAp network using ROS, Python, and PyQT
- Programmed a script for communication between the GUI and network nodes to set modes and control hardware
- Maintained precise documentation on scripts using GitHub
- Developed closed-loop testing functionality to control subsystem states within the GUI

Ground Station Development for the ISS Astrobee Robot, Space Systems Laboratory, MIT **Cambridge, MA**
Research Assistant Jan 2021 – June 2021
- Developed the communication structure between processors of Astrobee robot using ROS Java and Android Studio
- Participated in data collection and logistics during ground station testing at NASA – Ames and the ISS
- Designed a script that sent LED telemetry from the robots using ROS Python

PROJECTS

Multi-Agent Control of Autonomous Miniature Blimps **Ithaca, NY**
Master of Engineering Project Sep 2025-Present
- Leverage perception and controls experience to implement SLAM-based multi-agent coordination between miniature blimps
- Maintain precise documentation on the OptiTrack localization system
- Integrate Arduino hardware with control software to enable real-time robotic teleoperation.

Robotics: Signals and Systems Race **Cambridge, MA**
Student Feb 2024 – May 2024
- Collaborated with a team of 5 students to program a fully autonomous miniature race car to in a race around an indoor track and simulated city environment
- Leveraged ROS2 and a LiDAR scan of the basement to test and implement different path-planning algorithms
- Implemented a Proportional-Derivative (PD) controller and a pure pursuit controller for various use cases
- Used computer vision (OpenCV) and pre-trained machine learning packages (PyTorch) for obstacle avoidance and stop light recognition

- Localized the robot using an adjusted Monte Carlo localization algorithm (sensor fusion between LiDAR and IMU data)

Autonomous Drone Competition **Cambridge, MA**
Student Nov 2023 – Dec 2023

- Designed a controller (PD + Linear-Quadratic-Gaussian) to guide a DJI Tello drone through a suspended window
- Used April Tags for localization

LEADERSHIP

MIT Varsity Men's Volleyball **Cambridge, MA**
Athlete, Captain June 2020 – April 2024

- Promoted team cohesion and maintained a constructive team culture
- Addressed players and staff concerns and took necessary action

Theta Tau Professional Engineering Society **Boston, MA**
Social Chair Jan 2021 – Dec 2021

- Organized all social events including a 65-person formal event with food, lodging, and transportation
- Coordinated with other event planners and promote communication between organizations