# SAI ABHISHEK BHATTIPROLU

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## *Education*

**Master of Science in Robotics and Autonomous Systems** **08/2025-Present**
Systems Engineering Concentration
Arizona State University

**Bachelor of Science in Computer Engineering** **Degree Received: 05/2024**
University of Massachusetts Dartmouth

## *Professional Experience*

**Research Associate** **06/2024-present**
Massachusetts Institute of Technology (MIT)

- Programmed microcontrollers for a variety of embedded systems, enabling efficient sensor data acquisition, processing, and wireless communication to support real-time applications.
- Designed and integrated system architecture for automation processes, establishing secure and high-performance network communication between embedded devices and central servers.
- Led the system integration and testing efforts, optimizing data transfer protocols and ensuring reliable communication across diverse platforms, improving operational efficiency.
- Enhanced vehicle autonomy using the MOOS-IvP framework for waypoint navigation and mission profile drafting, contributing to improved autonomous decision-making and route optimization.
- Collaborated with cross-disciplinary teams to prototype and test real-world autonomous vehicle scenarios, ensuring seamless integration with other research initiatives.

**LTD Undergraduate Technical Intern** **05/2023-08/2023**
Intel Corporation

- Worked towards tool performance optimization, improving Green to Green levels and increasing manufacturing availability.
- Assisted in streamlining preventive maintenance procedures and process improvements to reduce downtime.

**Teaching Assistant** **06/2021-08/2021**
Boston Leadership Institute

- Delivered curriculum in Physics Engineering and Robotics to high school students, fostering critical thinking and hands-on learning.

**Teaching Assistant** **03/2019-05/2019**
Wellesley High School

- Led hands-on projects in Robotics and Engineering for **50+ students**, improving engagement and learning outcomes.

**Cyberforce Competition**

- Competed in a national cybersecurity challenge testing skills in network security and vulnerability analysis.

## *Publications*

- **Bhattiprolu, A.**, Tapanainen, N., Hamel, J., Nguyen, C., Edwards, B., Isaacs S., & de Weck, O. L. (2025). *Design and implementation of the PANTHER in-situ environmental monitoring system for Autonomous Surface Vehicles' system-of-system paradigm*. Paper in proceedings.
- Soderblom, A., Paek, S. W., **Bhattiprolu, A.**, & de Weck, O. L. (2025). *Predictive Thermal Modeling for a Renewably Powered Offshore AUV Servicing Platform*. Paper Number: OMAE2025-152581. Paper in proceedings.

## *Technical Skills*

- **Languages**: C, C++, C#, Python, MATLAB, AVR Assembly, VHDL
- **Embedded Systems**: Atmel Studio, AVR in C, Arduino, Raspberry Pi
- **Tools**: Vivado, Kali Linux, Ubuntu, 3D Printing, MOOS-IvP, Gitlab, Github, MacOS, Windows, Windows Subsystem Linux, Microsoft Office

## *Selected Projects*

- **Environmental Monitoring System**: Developed a real-time water quality monitoring system with sensors for key parameters like pH and dissolved oxygen, etc. Later integrated onto PEARL Autonomous Surface Vehicle using System-of-systems framework.
- **Bathymetry Mapping:** Integrated an autonomous system to measure and plot the depth from surface in water bodies on PEARL Autonomous Surface Vehicle using MOOS-IvP.
- **Raspberry Pi Hacking Project**: Exploited vulnerabilities to demonstrate real-world cybersecurity risks and mitigation.
- **Client-Server Communication**: Built a Python-based client-server model for efficient file transfers using UDP.
- **Traffic Light Simulation**: Programmed a traffic light system using AVR Assembly to model state machine operations.