

Philip Bui

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EDUCATION

Worcester Polytechnic Institute, B.S. in Computer Science, Dean's List, Upsilon Pi Epsilon Aug 2021 - Dec 2023

Tufts University, M.S. in Computer Science: Human-Robot Interaction, Honos Civicus Sep 2024 - May 2025

PROFESSIONAL EXPERIENCE

Swarm Robotics AI Research Intern, Air Force Research Laboratory May - Aug 2025

- Developed novel reinforcement learning algorithms for AI decision-making for swarm tactics.

Research Assistant, Human Interaction Lab, Tufts University Jan - May 2025

- Developed and maintained GailBot, a PyPI tool for Jeffersonian transcription and conversational analysis.
- Performed extensive documentation and bug fixes for Linux and macOS deployments utilizing Docker.

Software Engineer, enLabel Jan 2024 - Jan 2025

- Resolved 50+ bugs in undocumented legacy code & led UI system redesign, enhancing user experience.
- Architected a React TypeScript frontend with optimized ASP.NET API integration & data-driven interactions.
- Authored technical documentation & developed tools for end-to-end regression testing of C# ASP.NET APIs.

Website Developer, ProsperOn Jun 2023 - Feb 2024

- Developed accessible financial simulation web pages with React Typescript, based on Figma designs.
- Designed and integrated RESTful APIs with Node.js and architected comprehensive uplifting of legacy code.

Operations Intern, Amazon Jun - Aug 2023

- Developed an internal, mapping application, reducing costs by >\$10k (95%) per trained employee.
- Built a Node.js server for data retrieval via Amazon's internal database, located and monitored >7,000 items.

PROJECTS

Metrics-Driven Normative Supervision for Safe RL in Autonomous Driving, Tufts University Jan - May 2025

- Developed a post-training, metrics-driven supervisor for a DQN agent in HighwayEnv to safety norms.
- Reduced collisions by >85 % in-distribution and significantly improved zero-shot and adversarial robustness.

LLMs Can Be Judgy Too: Fine-Tuning LLMs for Character-Driven RL, Tufts University Dec 2024 - May 2025

- Integrated fine-tuned LLMs with PPO to model personalized facial expression feedback for RL agents.
- Built a system to generate and evaluate character-specific reactions with human-in-the-loop training.

Computer Vision-Guided Sphero Swarm Navigation Framework, Tufts University Sep - Dec 2024

- Developed a swarm navigation system with probabilistic localization and mapping using computer vision.
- Built a scalable microservice architecture with multiple servers using BLE for collision-aware coordination.

AI Platform for Low-Income Housing Development for City of Worcester, MA, WPI MQP Aug - Dec 2023

- Designed and implemented AI-driven due diligence analysis, integrating GIS & open source data pipelines.
- Leveraged a PostgreSQL database and Node.js server, using RESTful express APIs for efficient data retrieval.

Nitrogen Cycle Public Outreach AR Game for Boys & Girls Club, WPI IQP Oct 2022 - Mar 2023

- Led an 8-person team to develop an educational React AR.js game with an 86% approval rating from users.
- Facilitated learning for 100% of players on at least one core concept of nitrogen cycles in agriculture.

SKILLS

Programming: TypeScript/JavaScript, Python, Java, C, C++, CSS, HTML, C#, SQL, PHP, Swift

Software Development: React, Git, OpenCV, NumPy, ASP.NET, Node.js, Express.js, PostgreSQL, Telerik, IIS

COMMUNITY EXPERIENCE

Co-Founder & Chief Logistics Officer, Untitled Boston

Dec 2023 - May 2025

Community Events Coordinator, WPI Powerlifting

Jan 2023 - Dec 2023