Philip Bui

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EDUCATION & HONORS

M.S. in Computer Science: Human-Robot Interaction, Tufts University, Medford, MA   Sep 2024 - May 2025
- Graduated with a 3.8/4.0 GPA; inducted into Honos Civicus Society for leadership & civic impact with Untitled Boston

B.S. in Computer Science, Worcester Polytechnic Institute (WPI), Worcester, MA   Aug 2021 - Dec 2023
- Graduated with a 3.8/4.0 GPA and distinction; Dean's List; inducted into Upsilon Pi Epsilon; panelist on "UPE: Securing a CS Internship"

SKILLS

Web & Interactive:	JavaScript (React, AR.js, Express.js), C# (Unity, ASP.NET)
Data & ML:	Python (OpenCV, NumPy, scikit-learn, pandas), SQL (PostgreSQL, MySQL)
DevOps:	Git, GitHub Actions, Docker
Documentation:	LaTex, Markdown

RESEARCH ROLES

Research Intern, AI Futures Collab, WPI, Worcester, MA   May 2025 - Present
- Investigating human/AI interfacing and literacy, evaluating affordances, AI interactions, transparency and ethical implications of AI-driven media, and strategies for faculty adoption in higher education.

Graduate Research Assistant, Human Interaction Lab, Tufts University, Medford, MA   Jan - May 2025
- Led back-end overhaul of GailBot, a modular PyPI transcription pipeline for Jeffersonian notation atop off-the-shelf STT; re-architected Docker DAG to coordinate interdependent plugins.
- Engineered RESTful APIs, designed PostgreSQL schema, and implemented full CRUD in React; authored cross-platform deployment docs and resolved critical Linux/macOS bugs.

Swarm Robotics AI Research Intern, Air Force Research Laboratory, Eglin Air Force Base, FL   May - Aug 2025
- Developed novel, classified reinforcement-learning algorithms for swarm-tactics decision-making, advancing the United States of America's strategic AI capabilities.

RESEARCH PROJECTS

Metrics-Driven Normative Supervision for Safe RL in Autonomous Driving, Tufts University   Jan - May 2025
- Designed a post-training supervisor enforcing safety norms on DQN agents in HighwayEnv; reduced collision rates >85% and boosted zero-shot/adversarial robustness; submitted to AAAI 2025.

LLM Enhanced Captioning for Neurodivergent Users, Tufts University   Jan - May 2025
- Co-developed a real-time Chromium extension integrating a quantized Mistral-7B model over WebSocket; enriched captions with sentiment and intent, achieved <200 ms latency & >95% word accuracy; two pilots (N=8, N=3) reported 4.5/5 clarity.

AI Platform for Low-Income Housing Development for City of Worcester, MA, WPI MQP   Aug - Dec 2023
- Partnered with Worcester's Chief Development Officer to build an AI-assisted "smart contract" pipeline for land acquisition and financing as part of WPI's Major Qualifying Project (MQP) Program; integrated GIS & open-source data into a PostgreSQL/Node.js backend and React dashboard, enhancing transparency for local stakeholders.

Nitrogen Cycle Public Outreach AR Game for Boys & Girls Club, WPI IQP   Oct 2022 - Mar 2023
- Led an 8-person team to research nitrogen fixation and build an AR.js educational game for the Boys & Girls Club as part of WPI's Interactive Qualifying Project (IQP) Program; managed requirements, UI/storyboards, and front-end development, achieved 86% approval and 100% concept mastery.

LLMs Can Be Judgy Too: Fine-Tuning LLMs for Character-Driven RL, Tufts University   Dec 2024 - May 2025
- Built a PPO pipeline using a fine-tuned LLM as a reward model for facial-AU generation; across 30 scenarios, LLM-only achieved 3.12/5 mean accuracy, the hybrid approach matched at 3.07/5 with 32% less variance, and halved manual labeling effort.

Computer Vision-Guided Sphero Swarm Navigation Framework, Tufts University   Sep - Dec 2024
- Integrated overhead-camera MCL, PRM path planning, and a BLE-based microservice layer to enable scalable, real-time collision-free coordination of Sphero Bolt swarms.

Evaluating Preferences in Robot Control Systems, Tufts University   Sep - Dec 2024
- Ran an HRI study (n=11) comparing manual stick control vs. autonomous MCL/PRM navigation on obstacle courses; manual was 30% faster with slightly fewer collisions and preferred by 64% of participants.

PROFESSIONAL EXPERIENCE

Software Engineer, enLabel, Boston, MA   Jan 2024 - Jan 2025
- Refactored 50+ defects in legacy C#/ASP .NET code; led React/TypeScript UI redesign, improving workflows and user satisfaction.
- Architected a modular React frontend with optimized ASP .NET Web API integration; authored end-to-end regression-testing suite to automate API validation.

Website Developer, ProsperOn, Boston, MA   Jun 2023 - Feb 2024
- Built accessible React/TypeScript financial-simulation pages from Figma; refactored Node.js RESTful APIs to modernize legacy code.
- Piloted platform integrations with MassMutual, Mass Fintech Hub, and Boston University; featured in Fintech Sandbox as a leading financial-wellness startup.

Operations Intern, Amazon, Salem, OR   Jun - Aug 2023
- Developed a Node.js mapping tool to track >7,000 warehouse items; integrated into onboarding training, cutting per-employee costs by 95%.
- Served as deputized loss-prevention officer and led inter-shift morale initiatives.

COMMUNITY SERVICE

Co-Founder & Chief Logistics Officer, Untitled Boston, Boston, MA   Dec 2023 - May 2025
- Launched an underground arts collective securing venues, sponsorships, and studio space; produced sold-out fashion shows and performances for 5,000+ attendees and 1M+ social-media views.
- Recruited/managed cross-functional teams, handled legal/financial strategy, coordinated security & harm-reduction (Narcan), and led fundraising for underrepresented artists.

Front End Developer & Educator, Freelance, Boston, MA   Feb 2023 - Present
- Collaborated with local artists to translate creative visions into responsive digital experiences, and educating them on front-end fundamentals.

Community Events Coordinator, WPI Powerlifting, Worcester, MA   Jan 2023 - Dec 2023
- Forged partnerships with collegiate and professional powerlifting organizations; designed inclusive skill-building workshops, boosting recruitment and diversity.

Instructor, YWCA Central Massachusetts, Worcester, MA   Aug 2021 - Jun 2022
- Delivered swim & fitness instruction to 6–65 year-olds, including students with disabilities; achieved 100% course completion and performed three lifesaving interventions.