Marlow Fawn

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Experience

Tufts Human Robotics Interaction Lab, Medford, MA **Feb 2023 – August 2025**
Robotics Engineer

- Engineered robotics and AI across diverse platforms and tasks (manipulation, vision, language). Developed robust packages for cognitive architectures to unify multidisciplinary research efforts.
- Pioneered initiatives in object-based RL, MCTS for adversarial/collaborative symbolic planning, and formal safety for RL policies via STL and CLBFs; investigated normative reasoning and agent migration's impact on trust.
- Managed cross-functional teams and mentored students on full stack systems, from experiment design to low level robot integration.

Thinking Robots Inc., Boston, MA **Dec 2019 – Jan 2023**
Software Engineer

- Integrated natural language processing with reasoning systems to enable intuitive robot programming in manufacturing, supporting multi-agent pick-and-place and delivery operations.
- Developed and maintained continuous integration pipelines and comprehensive testing frameworks.
- Implemented a robot-agnostic design philosophy, allowing interoperability between robots for a given task.

Tufts HRI Lab, Medford, MA **Jun 2017 – Aug 2017, Jun 2019 – Nov 2019, Jan 2021 – Apr 2021**
Researcher

- Managed an embodied hybrid cognitive architecture focusing on symbolic planning, novelties, and RL.

Sustainable Electrochemical Energy Lab, Medford, MA **Sep 2017 – Jun 2018**
Researcher

- Designed and conducted experiments on efficiency in hydrogen fuel cell research.

Superconductivity and Fusion Research Lab, Medford, MA **Sep 2017 – May 2018**
Researcher

- Designed and analyzed finite element models for superconducting materials under torsional loads.

Education

Tufts University, Medford, MA
M.S. in Computer Science, Human-Robot Interaction; *GPA: 3.9* **Jun 2023 – Aug 2025**

Tufts University, Medford, MA
B.S. in Mechanical Engineering **Sep 2015 – May 2019**
James P. O'Leary Design Award, Dean's List (Fall 2017, Spring 2019)

Publications

Achieving Safe Control Online through Integration of Harmonic Control Lyapunov-Barrier Functions with Unsafe Object-Centric Action Policies
International Workshop on Formal Methods for Autonomous Systems

On Evaluating LLM Integration into Robotic Architectures
ACM Transactions on Intelligent Systems and Technology

Human-Understandable Descriptions of Novel Objects for Edge-Based Robots, under review

Skills

- **Programming:** Python, Java, C/C++, JavaScript (React, Firebase), UNIX, MATLAB
- **Robotics & AI:** ROS/ROS2, LangGraph/LangChain, RL, symbolic AI, planning, vision, simulation
- **Engineering:** CAD, FEA, machining, LabVIEW, 3D printing, rapid prototyping