Mansi Maheshwari

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Education

University of Massachusetts Amherst — Amherst, MA
Master's of Science in Computer Science (GPA 4.0) — *Aug. 2024 – May 2026*

- **Relevant Coursework:** Neural Networks, Reinforcement Learning, Robotics, Algorithms for Data Science, Research Methods, Research Writing
- **Thesis**: Lifelong Reinforcement Learning; Supervisors: Bruno Castro da Silva, Hao Zhang

University of Washington — Seattle, WA
Bachelor's of Science in Electrical Engineering — *Aug. 2018 – June 2022*

- **Relevant Coursework:** Fundamentals of Optimization and Machine Learning, Signal Processing, Statistical Methods for Science, Embedded Systems

Publications

Maheshwari, M., B. Castro da Silva, and J. C. Raisbeck. *AltNet: Alternating Network Resets for Plasticity.* In Proceedings of the Conference on Lifelong Learning Agents (CoLLAs), 2025. [paper]

Maheshwari, M., J. C. Raisbeck, and B. Castro da Silva. *AltNet: Addressing the Plasticity–Stability Dilemma in Reinforcement Learning.* Accepted for **oral** presentation at the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2026. [paper]

Awards and Scholarships

Finalist, Three Minute Thesis Competition — March 2025
Recognized as one of the top 10 students in a university-wide competition, where I presented my research on Continual Reinforcement Learning
[video]

Lawrence & Lucille Frey Endowed Electrical Engineering Scholarship — January 2021
Merit-based scholarship given to students at the University of Washington

Research and Industry Experience

Research Assistant (Reinforcement Learning and Robotics) — July 2024 – Present
Autonomous Learning Lab (Advisor: Bruno Castro da Silva), University of Massachusetts — *Amherst, MA*

- Developed a novel deep reinforcement learning architecture that improves continual learning, enhances sample efficiency, and increases safety in non-stationary environments.
- Evaluated agents on robotics control tasks and game environments (DeepMind Control Suite, MuJoCo).
- Adapted the proposed architecture for deployment on real robotic platforms.
- Published this research in workshop at the Conference on Lifelong Learning Agents (CoLLAs) 2025.
- Accepted for oral presentation at the International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2026.

Artificial Intelligence Research and Development Intern — May 2025 – Aug 2025
Perception Team, CNH Industrial — *Scottsdale, AZ*

- Led the design and development of an efficient, scalable vision architecture unifying object detection and segmentation through a transformer based YOLO multihead model for autonomous vehicles.
- Reduced parameters by ∼43%, cut inference cost by ∼30%, and outperformed baselines by ∼5-7%.
- Developed and documented a multi-task architecture that would allow new vision tasks to be added with minimal compute overhead, establishing a scalable foundation for future vision capabilities.
- Investigated multi-modal perception strategies by fusing image and sensor data, future-proofing the architecture for richer sensing modalities.

Software Engineer July 2022 – July 2024
Nordstrom *Seattle, WA*

- Optimized workflow by automating multiple engineering tasks (Java) in distributed systems.
- Achieved 80% test coverage for large-scale data integrity through JUnit Integration Tests for multiple projects.
- Led end-to-end development (requirements gathering, design discussions, code reviews, testing, and deployment) of a feature to stop awarding points for alcohol purchase.

Teaching and Outreach Experience

Subject Matter Expert, AI Curriculum (High School) Sept 2025 – Present
iCEV Multimedia *Remote*

- Designed curriculum and reviewed lesson plans to ensure accurate, scaffolded content for an introductory AI textbook for high school students.

Instructor, Fundametals of Artificial Intelligence May 2025 – July 2025
University of Washington *Remote*

- Co-developed the curriculum and designed accessible, visually engaging slide decks and coding exercises.
- Instructed a 10-day intensive course, consisting of 3-hour lectures, introducing high school students to core AI concepts including machine learning, deep learning, computer vision, large language models, and ethical AI.
- Guided students in completing final projects synthesizing learned skills.
- Fostered an inclusive and interactive classroom environment through live polls, quizzes, reflection activities, and curated videos showcasing real-world AI applications to enhance engagement and conceptual understanding.

Writing Tutor, Academic Support Services Sept 2021 – June 2022
University of Washington Writing Center *Seattle, WA*

- Tutored undergraduate and graduate students in academic writing, helping them strengthen clarity, structure, and analytical reasoning across disciplines.

STEM Outreach Ambassador, K–12 & Community Programs Sept 2020 – June 2021
Clean Energy Institute, University of Washington *Seattle, WA*

- Led STEM workshops and outreach events for K–12 students, introducing clean energy concepts and inspiring early engagement with science and engineering.

Projects

Human Following Robot, Autonomous Cinematography Feb 2025 – May 2025
Robotics Course

- Designed and implemented a mobile robot to autonomously follow and film a moving subject.
- Integrating perception (YOLOv7 for human detection and tracking), path planning (DWA-based trajectory generation), and real-time control (PID-based actuation)

Multi-Modal Conversational Recommender System Aug 2024 – Dec 2024
Neural Networks Course

- Built a multi-modal recommendation that generate transparent rationales to enhance user trust.
- Designed an end-to-end multi-modal pipeline over tabular, image, and text data using CLIP encoders, BERT-based retrieval, and GPT-4–driven explanations.

Technical Skills

Languages: Python, C/C++, Java, JavaScript, R, MATLAB
DL Frameworks: PyTorch, TensorFlow, JAX
Systems: CUDA, TensorRT, ROS, Linux
Domains: Deep/Reinforcement Learning, Transformers, Multi-Task Learning