Ashwin R Bharadwaj

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Technical Skills

Languages: C++, Python, Java, GoLang, Typescript
Technologies: PyTorch, TensorFlow, React.js, Angular, Flask, Unity, ROS
Concepts: Artificial Intelligence, Machine Learning, Robotics, Operating System, Cloud Computing

Education

Northeastern University Expected May 2025
Masters of Science in Artificial Intelligence (GPA: 3.75 / 4.00) *Boston, MA*

- **Teaching Assistant for Foundations of Artificial Intelligence for 4 semester.**
- **Founder of the Khoury Robotics Club.**

Work Experience

Cisco Systems Jan 2021 – Aug 2023
Software Engineer *Bangalore, India*

- Implemented backend framework in Golang that processed CRUD requests efficiently while synchronizing across 100s of nodes and increased throughput by 48%.
- Developed a ML bases system to proactively detect the load on servers. This was integrated into "Intersight" to automatically start and stop servers based on the anticipated load increasing power efficiency by 8.2%.

Microsoft Jan 2019 – Aug 2021
Research Intern *Bangalore, India*

- Built a machine learning model that took advantage of a graph structure to connect images/pictures/sculptures depicting historical events and connecting them with the textual description of the event.
- Mentored a team of interns and built a web app that visualizes graph based algorithms using ReactJs, GoLang, python for internal use.

Major Graduate Projects

WaltZ (Bipedal robot) | *C++*, *Python*, *Reinforcement Learning*, *SkLearn*, *Onshape*

- Designed, 3D printed and simulated a bi pedal walking robot with 6 DoF.
- Trained the robot to maintain its balance on a shaking table using an agent trained with Soft Actor-Critic algorithm and compared it with a Model-Based Approach with various horizon limits.

Speedy Navigation of Indoor Environments with Limited Sensory Inputs | *Pytorch*, *C++*, *Robotics*, *INV*, *Stereoscopy*

- Designed and implemented an advanced algorithm that allows robots to navigate very quickly in closed environments.
- Employed POMDPs and CNNs modified to be equivalent with tunable kernels at various angles to process the sensory inputs.
- Designed a cost effective universal mobile robot that focused on reliability and ease of use.

Publications

Ashwin Bharadwaj, Anio Zhang, Rajagopla Venkat. *Shapeshifting Coloring Problems: An Interactive Tiling Assignment*. EAAI 2025.(Awaiting publication)
Anio Zhang, Ashwin Bharadwaj, Rajagopla Venkat. *Escape the Castle: Estimate the behaviour using MDP problem*. EAAI 2025.(Awaiting publication)
A. R. Bharadwaj, Anio Zhang, "Efficient Inverse Kinematics for High-DoF Robots: A Kolmogorov-Arnold Network Approach", Northeast Robotics Colloquium (NERC), Amhrest, USA, 2024.
A. R. Bharadwaj, S. S. Chandra, D. S. Nair, A. R. Hatim and A. Ravikumar, "Automated mythological scene recognition using machine learning and graphs", 2020 International Conference on Artificial Intelligence and Signal Processing (AISP), Amaravati, India, 2020, pp. 1-5, Jan 2020.
Ashwin R. Bharadwaj, Hardik Gourisaria, Hrishikesh Viswanath, "Video Frame Rate Doubling Using Generative Adversarial Networks", Computer Communication, Networking and IoT (ICICC 2020), Bengaluru, India, Aug. 2020