Viraj Joshi

832-652-8221 | viraj_joshi@utexas.edu | viraj-joshi.github.io | US Citizen

Education

The University of Texas at Austin — Austin, TX
Master of Science in Computer Science; GPA: 3.8 — *Aug. 2023 – Aug. 2025*
Thesis: Massively Parallelized Multi-Task Reinforcement Learning [PDF]

Research Interest: Generalist Agents, RL, RL for Foundation Models

Relevant Coursework: Deep Learning, Generative Models, Grounded NLP, Model-Based Optimal Control, Optimization, Reinforcement Learning, Robotic Manipulation

The University of Texas at Austin — Austin, TX
Bachelor of Science in Computer Science, Mathematics (Double); GPA: 3.85 — *Aug. 2018 – May 2022*
Relevant Coursework: Artificial Intelligence, Applied Statistics, Differential Equations, Mathematical Statistics, Stochastic Processes, Numerical Analysis, Operating Systems, Partial Differential Equations, Predictive Analytics

Publications

Optimally Scaling Massively Parallelized Multi-Task Reinforcement Learning — In Progress
Viraj Joshi, Amy Zhang
- Integrating off-policy experience into on-policy, multi-task RL training to overcome batch size saturation

MTBench: Massively Parallelized Multi-Task Reinforcement Learning [PDF] — RLC 2025
Viraj Joshi, Zifan Xu*, Bo Liu, Peter Stone, Amy Zhang*
- Developed MTBench, the first massively parallelized, GPU-accelerated benchmark in multi-task RL (MTRL) for robotics tasks that accelerates training time from weeks to hours and enables large-scale MTRL on a single GPU
- This speedup revealed that on-policy methods are superior, and that value learning, rather than policy optimization, is the key challenge in this regime.

Experience

Graduate Research Assistant — September 2023 – Present
UT MIDI Lab | Advisor: Amy Zhang — *Austin, TX*
- LLM post-training (RLVR) to leverage test-time compute by self-correction strategies in math reasoning

Software Development Engineer Intern | Alexa AI — July 2021 – October 2021
Amazon — *Boston, MA*
- Designed and implemented lasting functionality to aggregate metrics on localization of Alexa features, leading to the deprecation of legacy processes and improved customer efficiency in process tracking
- Exposure to the full end-to-end Amazon software development cycle with the creation of customer-facing UI wired to back-end APIs hosted on AWS Lambda
- Technologies Used:
  - Tech: Python (Backend), React / Javascript (Frontend), Enzyme / Jest / Pytest (Testing), Balsamiq (Wireframing)
  - AWS: API Gateway, DynamoDB, EC2, Lambda, Cloudwatch, CDK

Data Engineer Intern — June 2020 – August 2020
Capital One — *Boston, MA*
- Visualized and quantified Risk Control Assurance by building an ETL pipeline, Python-Flask microservice, and UI with directed graphs and metrics
- Utilized AWS (Neptune, Gremlin), Python, React, G6.js, Plotly.js, Jenkins, Scrum/Agile development
- Interest in continuing project from SVPs, VPs, Senior Directors, Directors

Technical Skills

Languages: Python, Java, C, JavaScript, R, SQL
Technologies: PyTorch, React, AWS, Git, WandB, Docker, LaTeX
Machine Learning: Reinforcement Learning, Large Language Model, NVIDIA IsaacGym/Lab