

# Viraj Joshi

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## EDUCATION

### The University of Texas at Austin

Austin, TX

*Masters of Science in Computer Science; GPA: 3.85*

*Aug. 2023 – May 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

### MTBench: Massively Parallelized Multi-Task Reinforcement Learning [PDF]

RLC 2025

*Viraj Joshi, Zifan Xu, Bo Liu, Peter Stone, Amy Zhang*

- The first massively parallelized, GPU-accelerated benchmark for multi-task reinforcement learning in manipulation and locomotion, unifying approaches developed over the years and enabling rapid/accurate experimentation

## EXPERIENCE

### Graduate Research Assistant

September 2023 – Present

*UT MIDI Lab | Advisor: Amy Zhang*

*Austin, TX*

- Improving LLM post-training (RLVR) for reasoning with off-policy methods to use negative samples

### 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
- Buy in/Interest from SVPs, VPs, Senior Directors, Directors

## PROJECTS

### Context-Aware Forecasting | PyTorch

- Adapted multimodal LLM early (unified embedding space) and deep (cross-attention) fusion techniques to enable pre-trained time series foundation models (TimesFM) to leverage contextual univariate metadata

### Audio-Visual Navigation | PyTorch

- Investigated whether audio-visual navigation methods can localize a speaker and synthesize spoken navigation instructions relative to the speaker's location with visual perception in the indoor scene simulator Habitat

## TECHNICAL SKILLS

**Languages:** Python, Java, C, JavaScript, R, SQL

**Technologies:** PyTorch, React, AWS, Git, Docker, LaTeX

**Machine Learning:** Reinforcement Learning, Large Language Model, IsaacGym/Lab