Aditya Narayanan

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Education

The University of Texas at Austin Aug. 2021 – Present
B.S. Electrical and Computer Engineering Honors *Austin, TX*

- GPA: 3.98/4.00

Publications

1. **A. Narayanan**, P. Kasibhatla, M. Choi, P. Li, R. Zhao, and S. Chinchali. Peernet: An end-to-end profiling tool for real-time networked robotic systems. *IEEE/RSJ Conference on Intelligent Robots and Systems (IROS)*, 2024 **link**

2. P. Li, O. S. Toprak, **A. Narayanan**, U. Topcu, and S. Chinchali. Online foundation model selection in robotics. *Under review*, 2024 **link**

Work Experience

Synthefy Aug. 2024 – Present
Machine Learning Engineer *Austin, TX*

- Implemented synthetic data generation pipelines through inference of diffusion models, autoregressive language models, and statistical forecasting models.
- Developed pipelines for compilation, packaging, and shipment of source code in Docker containers.

UT Austin Swarm Robotics Lab Aug 2021 – Present
Undergraduate Researcher *Austin, TX*

- Actively researching contrastively-learned representations of timeseries data to improve zero-shot synthetic data generation with diffusion models.
- Previously led a project researching systematic benchmarking and profiling of networked robotic systems. Published first author paper in *IROS 2024*.
- Conducted various hardware experiments for research in ML + Robotics. Built custom edge device cluster for distributed ML experiments.

Mathworks May 2023 - Aug 2023
Engineering Development Intern *Natick, MA*

- Worked with a Simulink development team on a new toolbox for fault modeling and analysis. Performance and scalability tested various API and UI workflows for modeling and simulation of fault-enabled Simulink models. Wrote latency measurement and model generation code in Matlab.

Projects

Low-power Federated Learning May 2024

- Won first place in Edge AI course competition for an implementation of federated learning on real edge devices with lowest latency and power consumption.

Reinforcement Learning for Richman Games May 2024

- Developed Reinforcement Learning (RL) solutions to Richman bidding games (A variant of turn-based games) using policy gradient methods that outperform Monte-Carlo Tree Search (MCTS). Implemented custom RL environments, policy gradient algorithms, and developed metrics for comparison with game-theoretically optimal solutions.

Coursework

- **Machine Learning:** Edge AI, Reinforcement Learning, Computer Vision, Data Science, Data Science Lab
- **ECE:** Digital Signal Processing, Automatic Control, Operating Systems, Signals and Systems, Algorithms, Embedded Systems
- **Math:** Real Analysis, Linear Algebra, Probability, Mathematical Statistics, Differential Equations, Multivariable Calculus