TANMAY AMBADKAR

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EDUCATION

P.hD, Computer Science and Engineering Expected May 2027
The Pennsylvania State University
GPA: 3.56

B.Tech, Computer Science and Engineering August 2018 - July 2022
Indian Institute of Information Technology, Vadodara
GPA: 3.56

EXPERIENCE

Dept. of Electrical Engineering and Computer Science, The Pennsylvania State University
Research Assistant January 2024 - ongoing

- Developing and refining specification-guided framework to enhance the reliability, safety, and interpretability of RL agents.
- Collaborating with Kitware and the DoD, advancing human tunable policies that generate multiple courses-of-action without retraining.

Dept. of Architectural Engineering, The Pennsylvania State University
Research Assistant August 2023 - January 2025

- Designed frameworks to implement Reinforcement Learning agents for optimizing operational costs of grid integrated district energy systems by 32%. Added interpretability modules enabling stakeholders to understand agent decisions.

Dept. of Industrial and Manufacturing Engineering, The Pennsylvania State University
Research Assistant May 2023 - August 2023

- Leveraged large datasets (500GB) of Electronic Health Records to create forecasting algorithms that predict the likelihood of Autism Spectrum Disorder diagnosis before reaching 2 years old.

Siemens Technology and Services
Research and Digitization Automation Intern January 2022 - July 2022

- Detected anomalies in data using AutoEncoders and using explainable AI to identify which features contribute to the anomalies. Developed a plug-and-play library with multiple layers of abstraction to protect intellectual property.
- Added models and modifying workflows to a library to realize time-series end-to-end workflows for training and inference, with a 0.98 r^2 score.
- Explored data and created initial time-series forecasting models using CNNs for Starbucks data to forecast into the future with only 10000 training samples.

Siemens Technology and Services
Research and Digitization Automation Intern May 2021 - July 2021

- Developed and implemented the Industrial Predictive Analytics Engine, optimizing workflow creation by integrating real-time monitoring tools; achieved a 30% reduction in execution time through enhanced parallel processing capabilities.

PUBLICATIONS

[1] **Tanmay Ambadkar**, Darshan Chudiwal, Greg Anderson, Abhinav Verma. "SCALE: Safe Control via Abstract Interpretation over Learned Embeddings" (in Submission to ICML 2025)

[2] **Tanmay Ambadkar**, Djorde Zikelic, Abhinav Verma. "AutoSpec: Automating the Refinement of Reinforcement Learning Specifications" in PLDI 2024 - 45th ACM SIGPLAN Conference on Programming Language Design and Implementation (in Submission to ICML 2025)

[3] Saranya Anbarasu, **Tanmay Ambadkar** (2024). "Optimizing Operational Costs in Combined Heat and Power Integrated District Heating Systems: A Reinforcement Learning Approach." In Proceedings of SimBuild Conference 2024 (pp. 649–660). IBPSA-USA. | pdf

[4] **Tanmay Ambadkar**, Pramit Mazumdar, "Deep reinforcement learning approach to predict head movement in 360° videos" in Proc. IS&T Int'l. Symp. on Electronic Imaging: Image Processing: Algorithms and Systems, 2022, pp 367-1 - 367-5 | pdf |

[5] N. Menon*, S. Saboo*, **T. Ambadkar*** and U. Uppili, "Discrete Sequencing for Demand Forecasting: A novel data sampling technique for time series forecasting," 2022 International Conference on Intelligent Data Science Technologies and Applications (IDSTA), San Antonio, TX, USA, 2022, pp. 61-67 | pdf

[6] **Tanmay Ambadkar**, Jignesh S. Bhatt, A Simple Fast Resource-Efficient Deep Learning for Automatic Image Colorization in "31st Color and Imaging Conference" | | (CIC 31)

SKILLS

Technical Skills	Python, Java, Reinforcement Learning, Timeseries Forecasting, Explainable AI
Tools & Libraries	Pandas, Sklearn, TensorFlow, PyTorch,
Languages	English (TOEFL: 108), Hindi, Marathi