Tristan Shah

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Professional Summary

Machine learning researcher with expertise in reinforcement learning and generative AI. Experienced in developing large-scale software systems and applying advanced machine learning techniques to solve complex real-world problems.

Education

Doctor of Philosophy in Computer Science — **Lubbock, Texas**

Texas Tech University, Edward E. Whitacre Jr. College of Engineering — *January 2025 - Present*

- **Awards:** Koh Family Scholarship — full funding for 4 years of doctoral studies, awarded to only two students in the Edward E. Whitacre Jr. College of Engineering.

Masters of Science in Artificial Intelligence — **San Jose, California**

San Jose State University, Charles W. Davidson College of Engineering — *January 2022 - May 2024*

- **Awards:** Research and Innovation Student RSCA Fellowship.

Bachelors of Science in Data Science (Cum Laude) — **Ypsilanti, Michigan**

Eastern Michigan University, College of Arts & Sciences — *August 2017 - December 2021*

- **Awards:** Optimize Eastern Pitch Competition Winner, Perry S. Brundidge Scholarship, Emerald Scholarship.

Publications and Presentations

- J. Warner, **T. Shah**, P. Leser, G. Bomarito, J. Pribe, M. Stanley; Generative Modeling of Random Fields from Limited Data via Constrained Latent Flow Matching. *Under Review: NeurIPS 2025.*
- **T. Shah**, N. Smilovich, S. Gerges, F. Amirkulova, S. Tiomkin; Acoustic Wave Manipulation Through Sparse Robotic Actuation. *ICRA 2025.*
- **T. Shah**, M. Stanley, J. Warner; Generative Modeling of Microweather Wind Velocities for Urban Air Mobility. *IEEE Aerospace Conference 2025.*
- **T. Shah**, L. Zhuo, P. Lai, A. De La Rosa-Moreno, F. Amirkulova, P. Gerstoft; Reinforcement learning applied to metamaterial design. *Journal of the Acoustical Society of America*

Work Experience

National Aeronautics and Space Administration — **Hampton, Virginia**

Research Intern — *June 2024 - December 2024*

- Research and development of advanced generative AI methods for microweather forecasting.
- One of three interns to receive the Fall 2024 NASA agency-wide "Shining Star Award".

San Jose State University — **San Jose, California**

Research Assistant — *September 2023 - May 2024*

- Conducted research in machine learning based control of acoustic waves. Developed a large scale open source software system for simulation of acoustic wave scattering.

Instructional Student Assistant — *February 2022 - May 2022*

- Assisted in instructing a course focused on deep learning in engineering. Taught lab sessions, prepared exercises, and graded assignments.

Volunteer Visiting Scholar — *June 2020 - June 2021*

- Collaborated in an interdisciplinary partnership to apply reinforcement learning to inverse design problems in acoustics.

Konrad-Zuse-Zentrum für Informationstechnik — **Berlin, Germany**

Research Intern — *June 2022 - August 2022*

- Designed a method for landmark detection on 3D mesh data structures using graph neural networks.

Certifications

NVIDIA Deep Learning Institute: Applications of AI for Anomaly Detection, Building Transformer-Based Natural Language Processing Applications.

IBM AI Engineering Specialization: Deep Neural Networks with PyTorch, Building Deep Learning Models with TensorFlow, Introduction to Deep Learning & Neural Networks with Keras, Scalable Machine Learning on Big Data using Apache Spark, Machine Learning with Python, AI Capstone Project with Deep Learning.

University of Alberta Reinforcement Learning Specialization: Fundamentals of Reinforcement Learning, Sample-based Learning Methods, Prediction and Control with Function Approximation.

Technical Skills

Languages: Python, Julia, R

Developer Tools: Git, Slurm, Anaconda, Linux.

Technologies/Frameworks: PyTorch, PyTorch Geometric, Keras, scikit-learn, Flux.jl

Skills: Control Theory, Deep Learning, Computer Vision, Generative Modeling, Natural Language Processing, Reinforcement Learning, Physics Informed Machine Learning, Scientific Writing, Public Speaking.