Gaurav Mitra

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Machine Learning engineer with experience in compression, quantization, and efficient deep learning architectures for constrained or real-time environments. Built quantized autoencoders, containerized ML pipelines, and trajectory-prediction models using PyTorch and TensorFlow. Focused on reproducible and efficient ML systems.

Education

Georgia Institute of Technology, Atlanta, GA – MS in Computer Science, AI Specialization — Expected 11/26

University of Texas at Austin, Austin, TX – BS in Aerospace Engineering — 05/25

Skills

Languages: Python, C++, Java

ML/AI Frameworks: TensorFlow, Keras, PyTorch, NumPy, pandas, scikit-learn

Tools/Platforms: Docker, Git, Linux/Unix, AWS, Azure, CI/CD, Jupyter, MATLAB

Experience

Student Researcher, Dr. Tanaka's Lab, UT Austin – Austin, TX — June 2024 – Dec 2024

- Conducted research on quantized, variable-rate neural compression methods focused on constraining bitrate
- Built and integrated prototypes into a simulated transmission pipeline to study robustness under real-time conditions
- Led empirical analysis of rate–distortion trends and quantizer scaling behavior to guide architectural decisions

SDE Intern, Applied Research Laboratories – Austin, TX — May 2023 - Nov 2023

- Containerized monitoring services with Docker and automated CI/CD deployment to AWS, cutting time by 50%
- Wrote and integrated Pytest test suites for two production databases, improving test coverage and reliability
- Collaborated with a 10+ person research team to deploy services for secure and scalable applications

Research & Projects

Single-Agent Motion Prediction on the Waymo Open Motion Dataset

github.com/Gogo2015/WaymoMotionEstimator - Author; Technical Report, 2025

- Developed ConvMLP, a causal 1D convolutional encoder + MLP decoder to predict 8 seconds of agent trajectories (80 future steps) from 1-second history using 10Hz agent pose data
- Engineered TFRecord pipeline with spatial normalization and data augmentation for 80/20/20 train/val/test split
- Benchmarked ADE/FDE evaluation metrics and containerized the workflow for reproducibility with Docker

Quantized Convolutional Autoencoder for Video Compression

github.com/Gogo2015/ae_compressed_vision - Author; Project Report, 2024

- Implemented a full quantized convolutional autoencoder with adaptive bitrate control
- Analyzed compression behavior and evaluated quantizer scaling effects on model efficiency and reconstruction quality

Online Survey Platform (Full-Stack)

- Designed and deployed full-stack survey application with C#, ASP.NET, and SQL backend hosted on Azure
- Enabled dynamic survey generation, role-based authentication, and supported 20+ active users

Honors

College Scholar - UT Austin — Apr 2024

Tau Beta Pi - Engineering Honor Society — Aug 2023

Eagle Scout - Scouts BSA — Feb 2019

Citizenship Status: Eligible to work in the U.S. with no restrictions