RUTUJA GURAV

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EDUCATION

M.S. Computer Science, University of California, Riverside USA — 2017 - 2019
B.E. Computer Engineering, University of Mumbai, India — 2013 - 2017

RESEARCH EXPERIENCE

University of California, Riverside — 2019 - 2025
Graduate Student Researcher

LIGO Scientific Collaboration, Caltech
Visiting Student Researcher
Focus: Machine Learning for noise characterization in Advanced LIGO detectors.

WORK EXPERIENCE

Frontier Development Lab (FDL), a public-private partnership between NASA, Google and NVIDIA
Researcher — June - August 2024
Project: Forecasting radiation exposure for human spaceflight with multi-modal deep learning

Lawrence Livermore National Lab (LLNL)
Graduate Summer Research Intern (Team: Data Science & Analytics Group) — June - August 2022
Project: Modeled multi-scale, multi-physics simulations using Graph Neural Networks (GNNs).
Team Lead: Data Science Challenge — September 2021
Task: Led a group of undergraduate students to build machine learning models for - 1. classifying stars and galaxies using HSC images from the Subaru Telescope in Hawaii, 2. detecting asteroids in images from ZTF astronomical survey.

Oak Ridge National Lab (ORNL)
Graduate Summer Research Intern (Team: Geoinformatics Engineering) — June - August 2021
Project: Conflation of Geospatial POI Data and Ground-level Imagery via Link Prediction on Joint Semantic Graphs.

Esri Inc.
Data Science Intern (Team: GeoAI) — June - August 2018
Project: Water mains breaks prediction using historic pipe records to forecast future breaks in water supply pipelines to aid risk assessment and maintenance.

TECHNICAL SKILLS

Programming Languages & Software - Python (proficient); C/C++, Java, MATLAB (intermediate)
Machine Learning - Numpy, Scipy, Pandas, Scikit-Learn
Deep Learning - PyTorch / Lightning, Tensorflow / Keras
Tensor Analysis - Tensorly (Python); Tensor Toolbox (MATLAB)
Collaboration & Experiments Tracking - Git / Google Colab, Weight & Biases / Tensorboard
Cloud Computing Platforms - Google Cloud Platform (GCP)

SELECTED PUBLICATIONS

Gurav, R., et al. (2023). Can SAM recognize crops? Quantifying the zero-shot performance of a semantic segmentation foundation model on generating crop-type maps using satellite imagery for precision agriculture. In NeurIPS 2023 AI for Scientific Discovery: From Theory to Practice. ***(AI for Precision Agriculture)***

Gurav, R., De, D., Thakur, G., & Fan, J. (2021, November). Conflation of geospatial POI data and ground-level imagery via link prediction on joint semantic graph. In Proceedings of the 4th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery (pp. 5-8). ***(AI for Multi-modal Geospatial Analysis)***

PATENT

Conflation of geospatial points of interest and ground-level imagery, US12008800, 2024/6/11

CERTIFICATES

Generative AI (GenAI) with Large Language Models (LLM), DeepLearning.AI — May 16, 2024
How do Diffusion Models Work, DeepLearning.AI — November 26, 2024