## **RUTUJA GURAV**

rutujagurav100@gmail.com in linkedin.com/in/rutuja-gurav-91362992 github.com/rutujagurav

**EDUCATION** Ph. D. Computer Science, University of California, Riverside USA June 2019 - present

Research Areas: AI for Science (Gravitational-wave Astronomy, Precision Agriculture, Multi-modal Geospatial Analysis),

Foundation Models, Data Mining, Machine Learning, Deep Learning, Artificial Intelligence

M.S. Computer Science, University of California, Riverside USA

September 2017 - June 2019

B.E. Computer Engineering, University of Mumbai, India

June 2013 - June 2017

RESEARCH **EXPERIENCE**  University of California, Riverside

Graduate Student Researcher, M.S. & Ph.D.

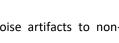
LIGO Scientific Collaboration, Caltech

Visiting Student Researcher

Focus: Machine Learning for Advanced LIGO

Exploring data mining and machine learning solutions for noise hunting in Advanced LIGO detectors.

- Tackling transient noise characterization to understand their origins and correlating transient noise artifacts to nonastrophysical instrumental or environmental sources.



WORK **EXPERIENCE** 

## Lawrence Livermore National Lab (LLNL)

Graduate Summer Research Intern (Team: Data Science & Analytics Group)

Project: Modeled multi-scale, multi-physics simulations using Graph Neural Networks (GNNs).

Team Lead: Data Science Challenge

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)

Project: Conflation of Geospatial POI Data and Ground-level Imagery via Link Prediction on Joint Semantic Graphs.

Esri Inc.

Data Science Intern (Team: GeoAI)

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, Scikit-optimize

Deep Learning - PyTorch / Lightning, Tensorflow / Keras

Tensor Analysis - Tensorly (Python); Tensor Toolbox, N-way toolbox (MATLAB)

Collaboration and Experiments Tracking - Git / Google Colab, Weight & Biases / Tensorboard

**SELECTED PUBLICATIONS**  Gurav, R., Papalexakis, E. E., Vajente, G., Richardson, J., & Barish, B. (2022, October). Identifying Witnesses to Noise

Transients in Ground-based Gravitational-wave Observations using Auxiliary Channels with Matrix and Tensor Factorization

Techniques. In NeurIPS 2022 AI for Science: Progress and Promises. (AI for Gravitational-wave Astronomy)

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). (Al for Geospatial Analysis)

**VOLUNTEER SERVICES** 

**Research Mentor** 

Summer Undergraduate Research Fellowship (SURF)

Affiliation: LIGO Scientific Collaboration

Digital Agriculture Fellowship, Research in Science and Engineering (RISE)

Affiliation: Digital Agriculture Group @ UCR

Conference Reviewer: WSDM 2020, CIKM 2021, AAAI 2023

Program Chair Member: FSS 2021, SMC 2021

Caltech





June - September 2022

September 2021

**W**OAK RIDGE National Laboratory

June - August 2021

June - August 2018

June - August 2022 & 2023

September 2022 - August 2023