RATNAKSHA LELE

PhD Candidate ratnaksha.github.io | rlele@ucsd.edu

Experienced in engineering machine learning and statistical methods on remotely sensed, earth observation and climate data. Strong background in time series analysis, signal processing and predictive analytics. Seeking opportunities to apply data-driven frameworks on real-world engineering, business and logistics challenges.

EDUCATION

UC SAN DIEGO
PhD in Oceanography
Expected 2023

UC SAN DIEGO
Master of Science
Physical Oceanography
Dec 2018

VIT UNIVERSITY
Bachelor of Technology
Mechanical Engineering
June 2016

SKILLS

Programming 5+ yrs:
Python ▪ MATLAB ▪ C

ML frameworks:
Sklearn ▪ PyTorch

Familiar:
R ▪ SQL ▪ ArcGIS

COURSEWORK

Recommender Sys. and Web Mining
Statistical Learning
ML for Physical Applications
Data Analysis Methods I,II & III
Applied Mathematics I,II & III
Probability and Statistics
Applied Numerical Methods
Operations Research

LINKS

www.github.com/ratnaksha

www.linkedin.com/in/ratnakshalele

WORK EXPERIENCE

CORTEVA ARGISCIENCE | MACHINE LEARNING SCIENTIST INTERN
MAR 2023 – PRESENT

- Designing ML and data assimilation to combine satellite & climate data with crop-growth models to improve corn yield forecasts in the mid-western US.
- Incorporated Bayesian Inference models using PyMC to better characterize uncertainity in model yield prediction at the individual field level

JUPITER INTELLIGENCE INC. | ML & DATA SCIENCE INTERN
JUN 2022 – SEPT 2022

- Built, engineered and tested a pilot machine learning model to predict coastal flooding in future climate scenarios along the US coastline.
- Incorporated a deep transfer-learning neural network to prioritize cost and efficiency to train the model over ~10M grid points in the domain. Expected to save company up to 80% of current flood modeling costs.

UC SAN DIEGO – SCRIPPS INSTITUTION OF OCEANOGRAPHY | PhD CANDIDATE
AUG 2016 – PRESENT

- Published research using time series analysis, statistical techniques, bootstrapping methods and advanced signal processing to quantify role of turbulence in the deep ocean from internal waves in global ocean circulation.
- Implementing Embedded Clustering on oceanographic observational data using Non-Negative Matrix Factorization and Gaussian Mixture Models to identify unique dynamical regimes of turbulence-driven mixing in the global ocean.
- Improving inference and predictability of ocean dynamics at high resolution by training deep neural network models on remotely sensed data from NASA's GRACE mission- to advance the understanding of global spatiotemporal variability in deep ocean currents and response to climate change.

WOODS HOLE OCEANOGRAPHIC INSTITUTION | RESEARCH FELLOW
JUNE 2015 – APRIL 2016

- Implemented time-series and spectral methods on in-situ Ice Tethered Profiler (ITP) sea-ice data, field and satellite observations to understand the dynamics and seasonal variation in sea-ice momentum and energy transfer.[pdf]

AWARDS

2020 NASA Future Investigator in Earth and Space Science Fellowship Grant
2020 NASA JPL Center for Climate Science Summer School
2017 Departmental Travel Award for Research Excellence
2016 UC San Diego Regents Fellowship
2016 VIT University Special Achiever Award
2015 Woods Hole Oceanographic Institution Summer Student Fellowship
2014 Indian Academy of Sciences Summer Research Fellowship