AKSHAY SURESH

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Data scientist with 7 years of experience performing statistical data analysis and signal processing using Python. Key contributor to 3 machine learning frameworks with broad-reaching scientific impacts. Interested in building artificial intelligence tools to solve hard real-world challenges and generate sustainable benefit for humanity.

MACHINE LEARNING EXPERIENCE

Independent Researcher 01/2024 – Present
Computer Vision and Remote Sensing for Climate
Skills: Computer vision, deep learning, geospatial data analysis, PyTorch, ArcGIS Pro

- Evaluated rooftop solar viability through LiDAR analysis for 996 Florida buildings, projecting that **53% could secure annual profits surpassing $1000 upon transitioning to solar-powered homes**.
- Deployed an image segmentation model to pinpoint oil wells in satellite imagery, leveraging a restricted training dataset of 294 natural color images with varying spatial resolutions.
- Co-organized virtual tutorial sessions for a cohort of 30 job seekers, focusing on machine learning applications in climate change mitigation and adaptation domains.

Machine Learning Researcher, Frontier Development Lab USA 06/2022 – 08/2022
Time Series Forecast of Rates of Induced Earthquakes from Carbon Sequestration
Skills: Time series forecasting, production code development, PyTorch, Google Cloud Platform (GCP)

- **Reduced modeling time from 22 hours to 3 minutes on a tablet** using numerical computing best practices, efficient optimizers, and dimensionality reduction methods.
- Integrated physics-based constraints with state-of-the-art temporal convolutional networks to enable 70% accurate earthquake forecasts for safe climate change mitigation activities.
- Lowered the entry barrier for code operation from an estimated global pool of 10,000 seismologists to at least 5 million people with basic computing skills.

Bootcamp Project Leader, Erdös Institute Data Science Certification 05/2022
Budgeting Fertilizer Usage for Sustainable Rice Cultivation in India
Skills: Team leadership, Python, geopandas, scikit-learn, Amazon Web Services (AWS)

- Developed an interactive dashboard to visually represent district-level yield distributions of 5 major crops across India from 1990 to 2017.
- Implemented regression models and established metrics to assess the accuracy of forecasts for optimal fertilizer inputs across 6 data-driven cultivation environments.

Graduate Research Project Lead, Cornell University 10/2019 – 05/2021
Enabling Automated Astrophysical Event Discovery
Skills: Deep learning, high-performance computing, signal processing, Python

- Constructed a deep neural network from scratch to classify and flag over 95% of interference signals in noisy data, thus minimizing human input in large-scale data processing.
- Engineered an automated, memory-efficient pipeline for parallel processing of 10 TB of data at speeds exceeding 500 GB/hr on supercomputing platforms.

EDUCATION

MS & PhD (Astronomy + Physics), Cornell University 08/2017 – 08/2023
BS & MS (Physics + Mathematics) Dual Degree with Distinction, IISER Pune 08/2012 – 05/2017