

# AKSHAY SURESH

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Data scientist with 7 years of experience in statistical data analysis and signal processing using Python. Played a pivotal role in developing three machine learning frameworks with significant industry impacts. Passionate about building innovative software solutions to address complex real-world problems and deliver sustainable benefits for businesses and society.

## WORK EXPERIENCE

Freelance Data Scientist 01/2024 – Present  
*Computer Vision and Remote Sensing for Climate*

- 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.

Graduate Researcher, Radio Astronomy group, Cornell University 08/2017 – 08/2023  
*Enabling Automated Astrophysical Event Discovery*

- 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.

Machine Learning Researcher, Frontier Development Lab USA 06/2022 – 08/2022  
*Time Series Forecast of Rates of Induced Earthquakes from Carbon Sequestration*

- **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 time series forecasting models 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, Erdős Institute Data Science Certification 📄 05/2022  
*Budgeting Fertilizer Usage for Sustainable Rice Cultivation in India*

- Implemented regression models and established metrics to assess the accuracy of forecasts for optimal fertilizer inputs across 6 data-driven cultivation environments. 📄

## TECHNICAL SKILLS

Computer Languages	Python, bash scripting, $\text{\LaTeX}$ , HTML, SQL
Python Libraries	PyTorch, scikit-learn, numpy, pandas, geopandas, xarray, matplotlib, seaborn, plotly
Quantitative Skills	Machine learning, numerical analysis, probability and statistics, signal processing
Software Engineering	High-performance computing, production code development
Cloud Computing	Google Cloud Platform (GCP), Amazon Web Services (AWS)
Geospatial Software	ArcGIS Pro, QGIS
Operating Systems	Linux, iOS, Microsoft Windows

## EDUCATION

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