PRATEIK SINHA

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EDUCATION

Carnegie Mellon University *Starting Aug 2025*
M.S. Machine Learning, School of Computer Science.
University of California, Los Angeles (UCLA) *2020 - 2024*
B.S., Double major in Mathematics of Computation & Statistics and Data Science, GPA: 3.901/4.0

PUBLICATIONS & PATENTS

AtmosArena: Benchmarking Foundation Models for Atmospheric Sciences | Tung Nguyen, **Prateik Sinha**, Advit Deepak, Karen A. McKinnon, Aditya Grover
NeurIPS 2024 Workshops: Foundation Models for Science (FM4Science), Tackling Climate Change with Machine Learning (CCAI)
[Paper] [Code]

Mini-Seizures: Novel Interictal iEEG Biomarker Capturing Synchronization Network Dynamics at the Epileptogenic Zone| Tonmoy Monsoor, Sotaro Kanai, Atsuro Daida, Naoto Kuroda, **Prateik Sinha**, et al. | American Epilepsy Society (AES 2024) | Under Review at Nature Neuroscience.
[Paper] [Poster]

Methods And Systems for Automatically Creating Engineering Drawings. **Sinha, Prateik** & Savant, Shrikant. 2025. US Application No. 63/837,442, filed July 2, 2025. Provisional Patent.

EXPERIENCE

Machine Learning Engineer, SolidWorks | Dassault Systèmes *July - Sep 2023 (Internship) | April 2024 - Present (Full Time)*
- Developed, deployed and patented a machine learning method to automatically generate engineering drawings from CAD models.
- Built ML models to generate and complete 3D models, extract specifications of 3D objects from 2D images, and detect features in generic 3D files.

Researcher | Prof. Aditya Grover, Machine Intelligence Group, UCLA *June 2023 – April 2024*
- Working on foundation models for climate. Co-authored a paper (AtmosArena) on benchmarking foundation models for atmospheric sciences.
- Fine-tuning climate models for downstream tasks such as prediction of sparse weather events and subseasonal forecasting to test and expand their capabilities.
- Building a framework to assimilate several data sources and create an improved and more accurate version of the ERA5 dataset.

Researcher | Prof. Vwani Roychowdhury, The Roychowdhury Group, UCLA *April 2023 – April 2024*
- Developed an approach to identify epileptogenic zones in the brain using network dynamics and machine learning. Co-authored a paper on the same.
- Extended our method to identify genetic mutations in human brain organoids using only 2-photon calcium imaging data. Manuscript in preparation.
- Working on organoid neural networks, models that use human brain organoids as biological hardware for machine learning.

Data Science Intern | Zelis Healthcare *June 2022 - Dec 2022*
- Built a backend pipeline to re-price insurance claims with KNIME, Python, R, Snowflake, and Microsoft Azure.
- Developed and maintained dashboards to track insurances claims, their re-pricings, and appeal status. Web-scraped required data using Python (Selenium) and automated cleaning and transforming incoming raw data and updating tables in Snowflake and Azure.

COMPETITIONS

LA Hacks 2023: 3rd place out of 187 teams *April 2023*
- Developed an app, people2vec, which matches like-minded people based on their personality by generating an embedding of their YouTube watch history and performing a similarity search against other users. Users can also explore an interactive 3D graph of how their tastes align with their matches.

HackMIT 2022: 2nd place in 'Best Use of Blockchain for Social Good' category out of 1000+ participants *Oct 2022*
- Built a crowd-sourced knowledge database, WikiSafe, which stakes all changes/edits to articles on the Ethereum blockchain to create a permanent, immutable record of each user's activity and edits, preserving transparency and reducing bias. Also summarizes the content of larger pages, automatically captions images to provide greater accessibility, and automatically generates relevant images for articles. Made using React, Flask, Solidity and Web3.js.

ASA DataFest 2022 @ UCLA: 2nd place for Data Visualization out of 300+ participants *May 2022*
- Investigated 2 million+ rows of data on a video game used to assess player characteristics by Yale University's Yale Center for Health and Learning Games. classified and predicted player types and personalities by applying hierarchical clustering, k-means clustering, PCA, regression, and random forest.

TEACHING & PROJECTS

ACM AI, UCLA | Projects Director & Projects Officer *May 2022 – April 2024*
- Led a team of ten to build a new curriculum and guided projects for Generative AI (GANs, diffusion, transformers, etc.) and AI Security (adversarial learning, FGSM, data poisoning, etc.). Started a competitive machine learning track to engage in Kaggle competitions with guidance from professors and graduates.
- Devised and taught a curriculum for computer vision, natural language processing and contrastive learning for 1.5-hour sessions thrice a week.

Plant Phenotyping Project | Scalable Analytics Institute (ScAI), UCLA *May 2023 – Dec 2023*
- Created an ML model alongside graduate students to predict the yield of a field of crops from images. Developed a method to extract morphological traits of plants using computer vision on RGB, depth & LiDAR data. Trained a model to measure stem diameter using depth estimation and image segmentation.