

Pratyush Muthukumar

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EXPERIENCE

TESLA | DATA ENGINEER INTERN

June 2023 – September 2023 | Palo Alto, CA

- Developed dashboard tools to execute **Spark / Trino** queries and visualize vehicle data with **32 TB daily ingestion rate** hosted on AWS
- Produced time-series reliability predictive model to query vehicle metrics via **SQL** for harmful trend detection in vehicle firmware updates and configured auto-triggered data pipeline via **Airflow**

LAWRENCE BERKELEY NATIONAL LABORATORY | RESEARCH INTERN

February 2021 – June 2023 | Berkeley, CA

- Developed robust monitoring tools through the SDNs for End-to-End Networked Science at the Exascale (SENSE) project
- Deployed AI-powered network monitoring system on the SLAC and NERSC labs using **Prometheus** and **Grafana** frameworks to collect and query metrics on end-to-end dataflows of over **2 petabytes**.

CITY OF LOS ANGELES | RESEARCH ASSOCIATE

August 2019 – December 2022 | Los Angeles, CA

- Researcher on a project sponsored by the City of Los Angeles and NASA to use machine learning technology to predict spatiotemporal air pollution around LA County and its effects on citizen health.
- Used a sequential encoder-decoder **ConvLSTM** model to predict atmospheric remote-sensing imagery of PM2.5 spatially continuously over LA with results showing **over 30% reduction in error** and **24x temporal resolution** over existing approaches.

NASA JPL | DIRECT-STEM STUDENT RESEARCHER

March 2019 – August 2020 | Los Angeles, CA

- Applied Generative Adversarial Network with Naive Bayes' Sentiment Analysis NLP to predict aerospace stock trends through financial text and numerical data.
- Results showed **over 65% decrease in error** over first-day predictions and **over 70% decrease in error** over 30-day predictions compared to other multi-format models.

AMAZON + LA COUNTY | DEVELOPER INTERN

August 2018 – April 2019 | Los Angeles, CA

- Developer of an Amazon Alexa skill that reminds stay-at-home elderly patients to take medication, consult medical advice, or describe symptoms of ailments.
- Wrote **node.js AWS Lambda functions** with over **5000** data points stored on **DynamoDB** to ask and reply to patients rating their pain.

PROJECTS

EDVENTVRE | STANFORD + META CORPORATE PROJECT

Jan 2023 – June 2023 | Stanford, CA

- Designed VR web app companion utilizing **React, HTML/CSS/JS**, and **PlayCanvas** to enable virtual exploration of historical sites with the Meta GHA platform
- Prototyped VR knowledge sharing tools with feedback from the Meta New Product Experimentation Team and presented at **Meta HQ**

SATELLITE IMAGE WELL PAD MAPPING | STANFORD AI LABORATORY (SAIL)

Jan 2023 – June 2023 | Stanford, CA

- Developed multi-task object detection model for mapping methane-emmission sources from global imagery through the Stanford ML Group advised by Professor **Andrew Ng**.
- Achieved all-time high mAP scores in **8 of 10** test regions while preserving scalability

EDUCATION

STANFORD UNIVERSITY

M.S. IN COMPUTER SCIENCE

Expected June 2024

Supported by NSF GRFP Fellowship

GPA: 4.00 / 4.00

UNIVERSITY OF CALIFORNIA, IRVINE

B.S. IN COMPUTER SCIENCE

WITH MINOR IN STATISTICS

Graduated June 2022

GPA: 3.97 / 4.00

SKILLS

PROGRAMMING

2+ years:

Java • Python • HTML/CSS

1+ years:

SQL • C++ • MATLAB

TECHNOLOGY

AI • AWS • Linux • Git

Spark • Trino • Tensorflow

Docker • Web Dev • TCP/IP

Kubernetes • Keras • PyTorch

COURSEWORK

UNDERGRADUATE

Artificial Intelligence

(Teaching Assistant)

Data Structures

Object-Oriented Programming

Calculus I-III

Differential Equations

Linear Algebra

Probability Theory

GRADUATE

NLP with Deep Learning

CNNs for Visual Recognition

Experimental Robotics

Mining Massive Datasets

Practical Machine Learning

LINKS

Github://

PannuMuthu

LinkedIn://

pratyush-muthukumar

Portfolio://

pratyushmuthukumar.ml