

# Pratyush Muthukumar

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## WORK/RESEARCH EXPERIENCE

### LAWRENCE BERKELEY NATIONAL LABORATORY |

#### STUDENT RESEARCHER

February 2021 – Present | Berkeley, CA

- Working as a student researcher at LBNL ESnet on the SDN for End-to-End Networked Science at the Exascale (SENSE) project.
- Deployed a dynamic 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 | UNDERGRADUATE LEAD DEVELOPER

August 2019 – Present | Los Angeles, CA

- Lead developer 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 the health of its residents.
- Used a sequential encoder-decoder ConvLSTM model to predict staggered Sentinel-2 satellite image data of NO<sub>2</sub> over Los Angeles county over a period of five years, SSIM = 0.95

### USC VITERBI ISI | SUMMER UNDERGRADUATE RESEARCHER

June 2019 – August 2019 | Marina Del Rey, CA

- Worked on a project utilizing the MAPF Shortest Path Algorithm to streamline traffic within intersections.
- Utilized Conflict-based search, A\* search, and Priority-based search pathfinding algorithms to manage semi-autonomous vehicle traffic.

### NASA JPL DIRECT-STEM | UNDERGRADUATE RESEARCHER

March 2019 – August 2020 | Los Angeles, CA

- Student researcher with a NSF-funded stipend per semester to conduct relevant research.
- Conducted research on using Generative Adversarial Networks with Naive Bayes' Sentiment Analysis NLP to predict aerospace stock trends through financial text and numerical data.

### AMAZON + LA COUNTY | UNDERGRADUATE DEVELOPER

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.

## AWARDS

- 2021 Barry M. Goldwater Scholarship
- 2020 UCI Alumni Association Scholarship
- 2020 Phyllis Allen Keys Memorial Scholarship
- 2020 Edison STEM Undergraduate Scholarship
- 2020 Phi Kappa Phi Research Grant
- 2020 Outstanding Poster Presentation – MAA/AMS JMM 2020
- 2019 Norman L. Eyster and Noemie E. Eyster Endowed Scholarship

## BIO

I am an undergraduate senior at UC Irvine majoring in Computer Science. I am passionate about developing efficient and accurate AI-powered solutions to real-world problems.

## EDUCATION

### UNIVERSITY OF CALIFORNIA, IRVINE

B.S. IN COMPUTER SCIENCE

Expected June 2022

Involvement: AI Club, ACM, UCIAA

### CALIFORNIA STATE UNIVERSITY, LOS ANGELES

ATTENDED 2018-2020

Involvement: Honors College, ACM

## SKILLS

### PROGRAMMING

3+ years:

Java • Python • HTML/CSS

2+ years:

Swift • C++ • MATLAB

1+ years:

Objective-C • node.js • SQL

### TECHNOLOGY

Artificial Intelligence • AWS • Linux  
Git/Github • iOS App Development •  
Web Development

## COURSEWORK

### UNDERGRADUATE

Artificial Intelligence

(Teaching Assistant)

Data Structures

Object-Oriented Programming

Calculus I-III

Differential Equations

Linear Algebra

Probability Theory

## LINKS

Github:// [PannuMuthu](#)

LinkedIn:// [pratyush-muthukumar](#)

Portfolio://

[pratyushmuthukumar.github.io](#)