

# Karthik Sabhanayakam

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## EDUCATION

### Basis Independent Silicon Valley

San Jose, CA

Class of 2025

3.97 GPA ; 1580 SAT

Relevant Coursework: AP Computer Science A, Post-AP Linear Algebra, AP Calculus BC, AP Economics, AP Physics C, AP Statistics

## EXPERIENCES

### Research Intern | ASSIP

May 2024 - Present

- Working under Professor Chaowei Yang at George Mason's Spatiotemporal Innovation Center.
- Analyzing data from satellites, leveraging Python-based deep learning frameworks to monitor air quality in Virginia.
- Publishing "AOD Fusion and Downscaling for Air Quality Monitoring".

### Independent Researcher

December 2023 - Present

- Investigated the impact of wavelet analysis on radio galaxy classification; novel approach achieved a 10.52% increase over state-of-the-art convolutional neural networks; publishing paper and presented at Science Fair
- Built an AI-based garbage sorter for my school to address errors with disposal, and presented it at our inaugural research expo.

### Student Researcher | ASDRP

August 2021 - December 2022

- Engineered deep learning algorithms for breast cancer prediction.
- Publication of "Predicting the Instance of Breast Cancer within Patients using a Convolutional Neural Network".

### Research Intern | San Jose State University

August 2023 - Present

- Examined environmental discrimination in superfunds by employing machine learning algorithms.
- Selected to showcase findings at National Conference for Undergraduates 2024.

### Software Engineer Intern | Daewoong Academy

January 2024 - Present

- Led development of API endpoints for Daewoong Academy's online SAT testing center.
- Assisting the college intern team with project management.

### ML Intern | Audax Labs

October 2023 - January 2024

- Implemented machine learning models for water fault detection to enhance product quality and manufacturing efficiency.
- Used technologies such as Kafka and Docker and submitted comprehensive report to superiors.

## Clubs

- President of Machine Learning Club (August 2022-Present)
- co-President of Science Olympiad Team (August 2021-Present)
- Vice President of Economics Debate and Outreach Club (August 2023-Present)

## Volunteering

- Economics Debate and Outreach: teaching student the foundations of economics at libraries
- Presidential Volunteer Service Award: Gold 2023 (120 hours of community service)

## CERTIFICATIONS AND COURSES

Python for Economics and Finance | UCLA

August 2023

Cognitive Assistants Course | MIT Beaver Works Summer Institute

April 2023

## SKILLS

**Programming Languages:** Java · Python · C++ · Javascript · SQL · C

**Web Frameworks:** ExpressJS · NextJS · React · Django · Flask · Vue.js

**Tools:**  $\text{\LaTeX}$  · GitHub Actions · Linux · Git · Docker

**Other Technologies:** NumPy · PyTorch · Keras · Pandas · Matplotlib · MongoDB · Firebase