

Creative, curious, and highly motivated undergraduate student seeking internship position in the field of computer science, robotics engineering, modeling, machine learning, and artificial intelligence

## Education

**University of California, Berkeley**

Berkeley, CA

**B.S. Electrical Engineering and Computer Sciences**

May 2025

- Structure and Interpretation of Computer Programs ▪ Data Structures
- Designing Information Systems and Devices ▪ CompSci Field Study

## Online Learning

- Machine Learning, Data Science and Deep Learning with Python. Tutorial with data science, Tensorflow, artificial intelligence, and neural network
- Introduction to Java for Programmers
- Master Object Oriented Design in Java.

## Skills

- Programming: Python and Java
- Libraries: NumPy, Matplotlib, TensorFlow, Seaborn, Graphics
- Machine Learning: Regression analysis, Bayesian classification (Naïve Bayes), K-means clustering, Trees and Random Forests, and Neural Networks
- OpenCV
- Onshape and Solidworks CAD applications
- Programming microcontrollers e.g., Raspberry Pi, Arduino.

## Experience

### Research Project

**Prof. Navid Shaghghi, Santa Clara University**

July 2020 – Present

*GrapeSense: A Grape Aging Classifier Using Residual Transfer Learning On Drone Images*

Developed machine learning algorithms for image classification of grapes in vineyards for robotic harvesting. Ongoing research to develop drone-based classification of grapes in real life vineyard settings

### Founder/Director/Lead Instructor

**Junior Robotics (501(c)(3), Non Profit)**

2020 – Present

- Nonprofit to offer summer and school year courses on programming in Python and CADing in OnShape for 100+ low-income middle school students through interest-based learning. [www.juniorrobotics.org](http://www.juniorrobotics.org)

### Captain/Lead Programmer

**Golden Gate Robotics (Robotics Team & Club)**

2018 - 2021

Wired robot, designed gearboxes and intake mechanisms, led programming subteam using Java to program computer vision and robot controls for the FIRST Robotics Competition

### Modeling Competitions

- 2021 International Math Modeling Challenge (IM2C), “G.O.A.T of Men’s Tennis”
- 2021 Mathworks Math Modelling Challenge (M3C) competition, “Defeating the Digital Divide: Internet Costs, Needs, and Optimal Planning”
- 2020/2021 High School Mathematics Modelling Competition (HiMCM), “The Best Summer Job”
- Honorable mention at the 2019/2020 HiMCM, “Predicting the Effects of Single-Use Plastic Water Bottle Ban”
- Semi-finalist at the 2020 “Model The Future” Challenge competition. “Effects of Future Climate: Change on Almonds in the California Central Valley: Insurance Loss Projections and Risk Mitigations”

## Publications/Presentation

- M. Sharma and N. Shaghghi, “*GrapeSense: A Grape Aging Classifier Using Residual Transfer Learning On Drone Images*,” *2021 IEEE Global Humanitarian Technology Conference (GHTC)*, 2021, pp. 225-228,
- M. Sharma (oral presentation), *GrapeSense: A Grape Aging Classifier Using Residual Transfer Learning On Drone Images* IEEE Global Humanitarian Technology Conference, Oct 2021

## Other Skills and Interests

- Music Album, “Activation Functions”, Available on Spotify and Apple Music
- Music Production using Logic Pro X and Ableton
- Jazz/blues/Rock Guitarist, proficient in Tabla (Indian Drums), keyboards and bass guitar