

# Sumadhu Rubaiyat (Genie)

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## EXPERIENCE

### UC San Diego, San Diego, CA — ARCLab

April 2023 - Present

ARCLab is a healthcare robotics lab. Working under a PhD student to train a model simulating the movement of human tissue upon interaction by a surgical robotic arm. Currently reading to create a deep learning model for medical image registration and segmentation tasks, particularly equivariant models utilizing GCNNs.

### Discover UCSD, San Diego, CA — CSE 6R Tutor

September 2023 - Present

Holding office hours. Reporting conceptual themes in student questions to professor. Experience handling academic integrity issues and prior knowledge differences.

### Santa Cruz High School, Santa Cruz, CA — Math Club President

September 2021 - May 2022

Expanded competition team from 2 to 30+ members, double prior peak. Arranged and trained members for contests. Offered math tutoring at meetings.

## SKILLS

Programming in Python, Java, C, C++, Bash, HTML, JavaScript, React Native, Git, Swift, Ruby, Git, LaTeX

Proficiency with TorchIO, OpenCV, NumPy, Matplotlib, Seaborn, Pandas, PyTorch, SegmentAnything, NLTK, scikit-learn, patsy, scipy.stats, statsmodels.api

Proficiency with XCode, Expo, Android Studio

Proficiency with Firebase Firestore, Storage, Hosting

Oral Communication, Code Readability

Quick learner: Earned SoloLearn JavaScript Certification in 6 days

## PROJECTS

### The Relationship Between Traffic Accidents and the Week of the UCSD Quarter

Hypothesized "The number of reported collisions to the police is highest during the first and last week of the UCSD quarter". Searched for, cleaned and wrangled public SDPD data. Performed correlation tests and analyzed data. Visualized data. Discussed data ethics. Reported findings through slideshow and video presentation, and a jupyter notebook. See reports here:

<https://github.com/srubaiyat05/cogs-108-project>

### Santa Cruz High School App

App displaying upcoming events, news, daily announcements, main calendar, staff contact information, bell schedule, interactive map, quick links, complete with a Firebase backend. Ready for publishing upon settlement of copyright issues with SCHS. Currently transforming code into an easily customizable format for any educational institution. Demo: <https://youtu.be/MiHEuWtClFE>

## EDUCATION

### UC San Diego, San Diego CA

July 2022 - Present

Math-CS major. GPA of 3.9. Major courses taken:

- MATH 20D: Introduction to Differential Equations
- MATH 31AH: Honors Linear Algebra (rigorous)
- MATH 31BH: Honors Multivariable Calculus (rigorous)
- MATH 109: Mathematical Reasoning
- MATH 140A: Foundations of Real Analysis I (rigorous)
- MATH 158: Extremal Combinatorics and Graph Theory (rigorous)
- MATH 170A: Introduction to Numerical Analysis: Linear Algebra
- MATH 180A: Introduction to Probability (rigorous)
- MATH 100A: Abstract Algebra I (rigorous)
- CSE 11: Introduction to Programming and Computational Problem-Solving: Accelerated Pace (rigorous)
- CSE 12: Basic Data Structures and Object-Oriented Design
- CSE 15L: Software Tools and Techniques Laboratory
- CSE 30: Computer Organization and Systems Programming
- CSE 101: Design and Analysis of Algorithms
- CSE 105: Theory of Computability
- COGS 108: Data Science in Practice
- CSE 158: Recommender Systems and Web Mining
- CSE 140: Components and Design Techniques for Digital Systems
- CSE 100: Advanced Data Structures

### Santa Cruz High School, Santa Cruz CA — High School Diploma

August 2019 - May 2022

Graduated one year early. 8 AP classes and 2 Honors classes. Academic GPA of 4.56. GPA Rank of 5/297.

### UC Santa Cruz, Santa Cruz CA

July 2019 - August 2019

Audited an Introduction to Discrete Mathematics course. Received an A on all homeworks, quizzes and tests.

## AWARDS

**AG Wilson Family Scholarship & SCHS Scholarship Trust**  
Two university scholarships distributed by a committee of teachers.

**Departmental Award In Mathematics For Innovation** 1 student is chosen by the head of each academic department to receive an award representing one of our school values.

**Bay Area Community College Consortium 2020 qualifier** One of top 3 teams in BayCyber hacking CaptureTheFlag regional round

**Highest AMC score at SCHS** 75 on AMC10 in 2020 (79th percentile), 87 on AMC10 in 2021 (82nd percentile)

**World Scholars Cup: 14 Awards from San Jose Regional Round, 14 Awards from Durban Global Round, 6 Awards from Yale Tournament Of Champions** World Scholars Cup is a research-focused competition, with debate, collaborative writing, and multiple choice events.