

Karan Gupta

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EDUCATION

Amador Valley High School

2020 – 2024

Relevant Coursework: AP Computer Science A, Advanced Computer Science, AP Calculus BC, AP Statistics, AP Physics C, AP Psychology, AP English Lang/Comp, AP World History

GPA: 4.44/4.0

College Courses (taken externally):

DeAnza College

Summer 2023 & Summer 2021

CIS 56: Network Security, CIS 44F: Big Data and Analytics

Foothill College

Spring & Summer 2022

CIS 53C: Ethical Hacking, ECON 1B: Microeconomics

HarvardX: CS50's Introduction to Computer Science

Spring & Fall 2020

LEADERSHIP & EXPERIENCE

Cybersecurity Curriculum and Learning Platform for Students (cyber.csignited.org)

Founder, CEO

Oct 2021 – Present

- Working with PUSD teachers to develop Cyber@CSIgnited, a lucid curriculum and learning platform to teach cybersecurity to middle and high school students
- Driving team of 5 in creating a web platform, guides, and hands-on demos and labs
- Dedicated 100+ hours to content and platform development, including:
 - Modules teaching Linux, networking, web exploitation, cryptography
 - Web platform (front-end/back-end)
 - Browser-based simulated bash terminal, encoding/decoding tools
 - Vulnerable webpages
- Marketed and held introductory workshop, drawing 100+ sign-ups
- Curriculum currently used in 3 schools; in talks to begin piloting in 3 others
- Publishing [blog series](#) (*We Don't Byte! A Cybersecurity Digest*) breaking down latest cybersecurity news for beginners
- Recognized for my efforts with a [feature](#) in AmadorValleyToday

ClubCompass (club-compass.vercel.app)

Co-founder, Back-end Developer

Apr 2024 – Present

- Working with my high school's admin and a team of three other to develop a new online club management platform
- Helped write database security policies; coded user auth functionality, data-fetching logic, and front-end using Nuxt/Vue.js
- Pitched prototype to a panel of industry professionals and initiated first steps of school district tech-approval process
- Currently working to add key paperwork management functionality and administration-side features

Purdue University

Student Researcher

May 2023 – Nov 2023

- Conducted research on agent sampling in federated learning alongside a postdoc researcher at Purdue's Elmore School
- Self-learned multivariable calculus, studied math foundations of neural networks (e.g., backpropagation, SGD)
- Coded federated-learning network for testing, conducted trials, and designed a novel performance metric to analyze results
- Identified key patterns in data that prompted advisor to reformulate research questions
- Documented findings in a [formal research paper](#) that has since been accepted into the SSRN library (ID# 4620297); responsible for writing Abstract, Introduction, Related Works, Methodology, and Findings sections

Machao (buildgpt.ai)

Software Engineering Intern

Jul 2023 – Sept 2023

- Company builds tools to host and enable next-generation Generative-AI applications
- Initiated and currently spearheading company-sponsored hackathon project to enhance product visibility and usership in target student demographic
- Programmed front-end for BookBot product; built new company website from scratch to better communicate vision, portfolio, usership to investors
- Implemented exception handling for primary product; changes rolled out to 100k+ users

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CSIgnited (csignited.org)

Founder

Jun 2021 – Present

- Established nonprofit organization to provide free CS- and cybersecurity-related education
- Developed and taught curriculum with 60+ hours of content (slides, demos, and interactive activities) introducing Python, web, and mobile development to 50+ middle and high school students
- Managed a team of 3 instructors teaching classes in ML, Python, and Java and reviewed content to ensure consistent quality

AV CyberSecurity Club

Amador Valley High School

President

Jun 2022 – Present

Vice President

Aug 2021 – Jun 2022

- Among 3 to reestablish the club, recruited 30+ active members
- Created and taught material for 40+ club meetings (and counting) on topics including networking, Linux, CTF skills (e.g., web, cryptography), pen-testing skills
- Placed 88th (top 6%) out of 1498+ middle and high school teams competing in CMU's 2023 PicoCTF
- Organized two digital-safety seminars at Pleasanton Senior Center, reaching 40+ seniors

AV Fencing Club

Amador Valley High School

Vice President

Aug 2021 – Present

- Responsible for club finances (totaling \$300) and marketing
- Taught new members the basics of fencing footwork and blade skills
- Recruited new beginners' group for my fencing gym outside of school

AmadorUAVs (amadoruavs.com)

Amador Valley High School

Member, UAV Software Team

Apr 2021 – May 2023

- Part of the software team responsible for development of a competition drone
- Redesigned team website (amadoruavs.com)
- Co-developed a prototype ground control system for the drone
 - Worked with UAVCAN protocol to allow lightweight publish-subscribe messaging between GCS plugins and onboard drone components
 - Wrote middleman node to convert messages between MavLink and UAVCAN protocols and enable communication with drone
- Presented on the design of the ground control system at 2021 [PX4 Dev Summit](#)
- Developed a prototype image transport system using latest protocols (HTTP3/QUIC) to improve reliability
- Our team went on to win 2nd place globally in 2022 collegiate AUVSI SUAS competition

Cisco High School Internship Program

Amador Valley High School

Participant, Awardee

Summer 2022

- Learned about and worked with software tools (i.e., Docker) and Cisco technologies (i.e., SD-WAN, NFV)
- Won 2nd place in Cisco BridgeHacks among 30 teams with Hybridge, an intelligent meeting scheduling tool for hybrid work

ACE Coding (acecoding.org)

Amador Valley High School

Coding Instructor

Aug 2020 – May 2022

- Prepared and taught C++ curriculum for 16 classes (25+ hours) to offer middle schoolers advanced learning opportunities
- Curriculum has now been used by 5 other instructors to teach 40+ students to date
- Helped design website for ACE Code Day hackathon and taught a workshop reaching 20 students

MISCELLANEOUS

Technical Skills

- Advanced proficiency in C, Java, Python; Proficient in C++
- Full-Stack Software Development - Mobile/Web Development (HTML/CSS/JS, Nuxt/Vue.js, Android Framework)
- Networking, Cybersecurity
- Machine Learning (NumPy, Torch, Pandas, TensorFlow)

Other Interests

- Fencing (Epee) - Competitive Epee fencer for 6+ years; placed 29th at the 2023 Div-III National Championship