Karan Agarwal

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EDUCATION

University of Maryland — **College Park, Maryland**
Bachelor of Science in Computer Science — *May 2025*

- GPA: 3.88
- Minor: Innovation and Entrepreneurship
- Courses: Computer Vision, Data Science, Algorithms, Discrete Structures, Computer Systems, Object Oriented Programming I & II
- Clubs/Organizations: Phi Kappa Tau Fraternity, XR Club, BigTh!nk AI, Google Student Developer Club.

University of Madrid Carlos III — **Madrid, Spain**
Semester Study Abroad — *January 2024 - June 2024*

- Courses: Artificial Intelligence, Computer Networks

Technical Skills
Programming Languages: Java, JavaScript, HTML, CSS, Python, C, Assembly, Ruby, Rust, Dart, SQL, Kotlin
Softwares/Frameworks: VS Code, Git, Linux, Android Studio, Firebase, LaTex, Tensorflow, Vim, AWS, Figma

PROJECTS

TerpMatch - Founder — **Present**
Tech Stack: Flutter, Android Studio, Firebase, Figma, GitHub, Trello

- Executing the development of TerpMatch, an app designed to foster connections among University of Maryland students through shared academic and social interests. Targeting a release in Fall 2024.
- Leading database architecture and software design optimization with a team of 5 while implementing agile practices for iterative development and design adjustments.
- Secured $1,500 in seed funding from the Dingman Center for Entrepreneurship at the University of Maryland.

Capital One Machine Learning: First-Year Innovation and Research Projects

- Similar Song Predictor using Vector Quantized Variational Autoencoder — December 2022
  - Worked in a team of 4 to create a model which predicts a similar song based on the inputted song
  - *Data Handling*: Processed a dataset of 100,000 songs from the Free Music Archive (FMA), utilizing librosa to transform audio into Mel-frequency cepstral coefficients (MFCC) for feature extraction.
  - *Model Development:* Applied a Vector Quantized Variational Autoencoder to autoencode audio data, achieving nuanced song similarity predictions by analyzing the minimal Euclidean distance between encoded vectors.
- Facial Recognition Project — May 2022
  - Played a pivotal role in a 4-member team developing a facial recognition model to accurately identify students.
  - *Model Training:* Utilized TensorFlow (Keras), PyTorch, and the EfficientNetB0 architecture for robust model development, training the model on a dataset of 30 students with unique IDs for high-accuracy identification.
  - *Image Processing:* Enhanced recognition accuracy using AlignDlib for facial alignment, coupled with coco annotations for precise dataset labeling, significantly improving the model's testing phase outcomes.

EXPERIENCE

Teaching Assistant — **College Park, Maryland**
CMSC 131 - Object Oriented Programming I — *January 2023 - Present*

- Collaboratively managed and instructed a course for over 900 students, enhancing learning outcomes through proactive engagement.
- Delivered targeted lab sessions and office hours, focusing on data structures and recursion, while efficiently debugging student code to improve software development skills.

Resident Advisor — **College Park, Maryland**
University of Maryland — *January 2023 - December 2023*

- Managed a residence hall floor with 50+ undergraduates, fostering a positive living environment through community-building initiatives.
- Effectively resolved numerous resident conflicts and enhanced community engagement through monthly educational programs on diversity, wellness, and academic success.x

Vision Publications — **Pune, India**
Team Lead Intern — *June 2021 - July 2021*

- Collaborated with the CEO of the company to develop an online education and learning system using Moodle.
- Led a group of 4 people to increase the website clicks and social media presence by 30%.