Aditya Aggarwal

+1-858-241-1130 | a9aggarwal@ucsd.edu | [Webpage]() | [Github]() | [Linkedin]()

EDUCATION

- **University of California, San Diego** — San Diego, CA
  Masters of Science in Computer Science & Engineering (**GPA: 3.9 / 4.0**) — December 2023 (Tentative)
  Graduate Researcher (*Cognitive Robotics Lab*), **Teaching Assistant** (*Algorithms*)

- **International Institute of Information Technology** — Hyderabad, India
  Bachelor of Technology (Honors) in Electronics & Communication Engineering (**CGPA: 8.9 / 10**) — June 2020
  Undergraduate Researcher (*Computer Vision Lab*), **Teaching Assistant** (*Computer Vision, Image Processing*)

EXPERIENCE

- **Software Engineering Intern, *Google*** Sunnyvale, CA — June 2023 - Present
  - Developed gRPC service and data processing pipeline with MapReduce for migration of manual review records from Google Shopping to a centralized database. *(Tech Stack: Java, SQL)*
  - Improved the scalability by using messaging queues to handle **1000 burst QPS and 5K daily records**. Made the system extensible by supporting Push and Pull frameworks, reducing onboarding time from **8 weeks to 2 weeks**.
  - Currently working on comprehensive E2E integration tests and deployment to ensure the robustness of the pipeline.

- **Research Intern, *Microsoft Research*** Bangalore, India — February 2021 - August 2022
  - Conducted research at the intersection of computer vision and HCI to formulate, build, and benchmark novel AI solutions in the healthcare domain. *(Tech Stack: Python, Android SDK, Machine Learning)*
  - Built an Android app to record 120 fps videos and integrated with a cloud-deployed video analysis pipeline, which tracked retinal reflex and retinoscopic beam to estimate the refractive error of the human eye.
  - Led a clinical evaluation on **128 patients** and achieved a SOTA MAE of $0.75 \pm 0.67D$. [[project page](), [paper](), [code]()]

- **Product Engineer, *Gojek*** Bangalore, India — July 2020 - January 2021
  - Collaborated on a ride-hailing platform catering to **4M+ daily users**, focusing on implementing on-demand features and enhancing the customer booking experience. *(Tech Stack: Go, Ruby, Kafka, PostgreSQL)*
  - Designed and built a scheduling service with job execution and retry support, that allowed users to book rides in the future, leading to an **increase in the Booking Conversion Rate (BCR) from 90% to 95%**.
  - Deployed Firebase remote config APIs to dynamically modify navigation map appearance across Android and iOS, thus enhancing system extensibility and fault tolerance without requiring app updates.

- **Open Source Developer, *Google Summer of Code (GSoC)*** Robocomp — April 2019 - August 2019
  - Implemented a **[People Identification System]()**, able to identify people from very few images by training a Siamese neural network and minimizing euclidean distance in feature space. This achieved profound interactions between robots and humans, enhancing the robots' decision-making capacities through differentiation among humans.

PROJECTS

- **Fault tolerant distributed system**: Built a distributed file storage system using gRPC, with concurrent reads and write support. Implemented consistent hashing and RAFT consensus protocol to make the system scalable and resilient to failure of up to 50% of servers. [[code]()]

- **Human Activity Recognition**: Formulated an average pooled graph convolution model for skeletal action recognition which achieved a SOTA accuracy of 88.80% (Cross Setup) on the NTU-120 dataset. [[paper](), [project page]()]

- **3D Shape and Pose Estimation**: Integrated a neural network with a differentiable renderer to backpropagate the loss for shape and pose estimation in monocular videos. Benchmarked it on synthetically rendered dataset. [[paper](), [code]()]

ACHIEVEMENTS

- Selected as a Student Mentor for the Google Summer of Code 2020 and 2021 by Robocomp organization.
- Awarded the **Dean's Merit List** for excellent performance in academics for 5 semesters (Top 5 % students).
- Ranked 24th at the [CANSAT 2018]() organized by The American Astronautical Society (AAS).

TECHNICAL SKILLS

- **Languages and Tools**: Java, Python, Go, C++ Javascript, Ruby, SQL, Git, LaTeX
- **Machine Learning**: PyTorch, TensorFlow, OpenCV, NLTK