

HAIHAO SUN

203-507-1770 | haihaosun15@gmail.com | [Linkedin](#)

EDUCATION

Yale University | New Haven, Connecticut

Aug 2021 - May 2022

Master of Science in Computer Science

Cumulative GPA 4.0/4.0

- **Selected Coursework:** Distributed Systems, Intelligent Robotics, Programming Languages and Compilers, Computer Security

University of California San Diego | La Jolla, CA

Sep 2018 – June 2021

Bachelor of Science in Computer Engineering

Cumulative GPA 3.94/4.0 - Major GPA 4.0/4.0

- **Selected Coursework:** Principles of Computer Operating Systems, Database System, Design and Analysis of Algorithms, Software Engineering, Web Mining and Recommender Systems, Engineering Probability and Statistics

LEADERSHIP AND AWARDS

Gold Medalist in ICPC North America West Division Championship | C++, Python, Algorithm

2020-2021

6th place, Bronze medalist in ICPC North America Championship | C++, Python, Algorithm

2020-2021

1st place in ICPC Southern California USA Regional | C++, Python, Algorithm

2020-2021

Beginner Programming Competition **organizer** in **Women in Computing** @ UC San Diego

2019-2020

WORK EXPERIENCE

Google

July 2022 – Present

Software Engineer - Android Autonomous Perception

- Worked on developing the state-of-the-art Surround View Solution to represent the world around the car in 3D with **cameras, applied computer vision, and 3D Graphics**. Surround View is a high-quality and efficient stitching library for Android Automotive that stitches the automotive surround cameras to generate an immersive 3D 360 degree scene around the vehicle. Automotive partners use this library to develop their parking assist solution.
- Spearheaded the definition of **project-specific machine learning model error metrics**, flagged flawed images, and fine-tuned the model using flawed images to optimize performance.
- Utilized machine learning models to accurately draw bounding boxes around traffic lights, and developed an OpenCV-based program for **real-time detection and classification** of traffic light colors (e.g., red, green, and yellow) to augment vehicle safety and navigation systems.
- Pioneered the development of a Multi-View Camera System with surround view capabilities, enabling the simultaneous display of a **2D top-down view and a 3D 360-degree view** for comprehensive situational awareness in vehicular environments.
- Developed and executed a MediaPipe pipeline using C++ that takes into account camera parameters, raw fisheye images, and segmentation models. This pipeline is designed to determine the **proximity of the nearest objects to the car**, based on corresponding 3D world coordinates on the ground derived from 2D pixel coordinates.

Microsoft

June 2021 – Aug 2021

Software Engineer Intern - Microsoft Search, Assistant and Intelligence

- Worked with **Microsoft Search, Assistant and Intelligence, Teams iOS** client development team. Developed CMU (Catch Me Up) in Teams iOS for helping **200+** users listen to, reply, and react to unread messages during driving.
- Prototyped Teams iOS in **CarPlay** by configuring interactive user interface with **SwiftUI**. Accomplished launching CMU with **Sirikit technology** when users driving the car with iPhone locked.

Disney+ Hotstar

Apr 2021 – May 2021

Software Engineer Intern

- Optimized anomaly detection in time series data using **Facebook Prophet**. Deduced reasons behind range-based anomalies with **96%** accuracy. Clustered hypotheses using Disjoint-set in **Golang** to remove redundant hypotheses.
- Built and deployed a **Docker Kubernetes-ready** service in **Golang** which managed to aggregate and standardize **20000+** metrics from different sources dynamically, thereby helping **10+** developing teams monitor multiple servers with **Prometheus and Grafana**.

UC San Diego

Mar 2020 – Mar 2021

Data Structure and Algorithm Tutor

- Supported and helped DSC30/DSC20 with 200+ students enrolled as an undergraduate teaching assistant. Held **100+** office hours to guide **200+** students with Data Structure and Algorithms using Java and Python.
- Explained and **Data Structure and Algorithm** including searching algorithms, linked lists, queues, heaps, graph traversal, trees, Huffman coding, hash tables, and object-oriented programming.

TECHNICAL SKILLS

Languages: C/C++, Golang, Python, Java, SQL, Swift, JavaScript, HTML/CSS, MATLAB

Technologies: OpenCV, Docker, Kubernetes, React, Node.js, Prometheus, Grafana

Developer Tools: Git, Unix/Linux, Vim, VS Code, Xcode, IntelliJ