

Grace Cai

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EDUCATION

University of Maryland, College Park

Master of Science in Computer Science

College Park, MD

Expected Graduation: May 2027

University of Maryland, College Park

Bachelor of Science in Computer Science and Physics

College Park, MD

Aug 2023 – May 2026

- GPA: 3.84/4.00
- Relevant Coursework: Object-Oriented Programming, Discrete Structures, Computer Systems, Algorithms, Organization of Programming Languages, Data Science, Artificial Intelligence, Machine Learning, Compilers, Applied Probability and Statistics, Linear Algebra, Multivariable Calculus, Differential Equations
- Graduate-level Coursework: Physically-based Modeling, Simulation, and Animation; Differentiable Programming
- Awards: CS Departmental Honors, Presidential Scholarship, Dean's List

TECHNICAL SKILLS

Languages: Java, Python, C, Go, TypeScript, C++, SQL

Libraries and Frameworks: PyTorch, OpenCV, LangChain, NumPy, Pandas, Matplotlib, React, Streamlit, Three.js

Developer Tools: Git, VS Code, Anaconda, Jupyter

EXPERIENCE

Undergraduate Researcher

University of Maryland - Advised by Prof. Ming Lin and Dr. Laura Zheng (Waymo) May 2025 – Present

College Park, MD

- Designed a general physics-based model for micro-mobility vehicles (MMVs) such as bicycles, scooters, and skateboards
- Developed a simulator using Three.js to model MMVs with customizable parameters and wheel arrangements
- Applying general micro-mobility model to simulate multi-agent interactions for robotics and autonomous vehicle training

Software Engineering Intern

Uber Technologies, Inc. Jun 2025 – Aug 2025

San Francisco, CA

- Implemented multimodal support in Go and Python for internal privacy risk and triage tool, increasing recall by 25%
- Extended benchmarking suite to assess accuracy improvement and collaborated with stakeholders to design rollout plan
- Built multimodal RAG pipeline to ingest and retrieve images using VectorDB

UberSTAR Software Engineering Intern

Uber Technologies, Inc. May 2024 – Aug 2024

San Francisco, CA

- Utilized Python, Streamlit, and LangChain to build a proof-of-concept tool that summarizes documents
- Collaborated with architects and engineers to write and evaluate LLM prompts in Michelangelo (internal ML platform)
- Integrated summarization functionality into internal document review platform using Go and React with TypeScript

PROJECTS

Weapon Watch | Python, PyTorch, React, Expo, Firebase

Oct 2024 – Sep 2025

Project Link: gracelcai.github.io/projects/1-weapon-watch

AI-powered weapon detection, notification, and tracking system for schools.

- Coordinated a team of 10 students to develop an automated weapon detection and notification app using React with Expo
- Leveraged CUDA on Ubuntu for PyTorch inference on security footage to track weapons and suspects
- Conducted school security market research, created pricing model, and pitched to investors
- Finalist in xFoundry@UMD's school safety startup competition, semifinalist in Texas A&M University AI Pitch Competition

Scootopia | TypeScript, Three.js

Jan 2025 – May 2025

Project Link: micro-mobility-project-website.vercel.app

Traffic simulator that models unsafe behaviors and interactions between vehicles, micro-mobility vehicles, and pedestrians on college campuses.

- Researched data-driven methods to model unsafe behaviors such as jaywalking, speeding, and stop sign violations
- Implemented unsafe behaviors into 3D simulator using Three.js with customizable parameters and road layouts

STUDENT ORGANIZATIONS

Robotics at Maryland | AUV Computer Vision Lead

Aug 2023 – Aug 2025

- Calibrated fisheye cameras for stereo vision to generate a depth map using OpenCV
- Adapted object detection workflow for fisheye camera projections
- Collected image data and automated labeling process with Roboflow to train YOLO object detection models