Yumeng "Mona" Zhao

(336) 338-2074 | yzhao172@ucsc.edu | linkedin.com/in/monazhao417 | mayuzh.github.io/monazhao

Education

University of California, Santa Cruz **Expected Graduation: Jun 2025**
Master of Science in Computer Science and Engineering *Santa Cruz, CA*

University of California, Santa Cruz **2019 – 2023**
Bachelor of Science in Computer Science *Santa Cruz, CA*
Coursework: Data Structures and Algorithms, Computational Models, Computer Architecture, Principles of Computer Systems Design, Operating Systems, Web Applications, Software Engineering, Computer Graphics, Machine Learning, Artificial Intelligence, Probability and Statistics, Classical and Bayesian Inference

Technical Skills

Programming Languages: Python, C/C++, Java, JavaScript, HTML/CSS, SQL, MATLAB, R, Coq
Technologies: NumPy, Pandas, PyTorch, scikit-learn, TensorFlow, OpenCV, YOLO, OpenAI, Google Cloud
Frameworks/Databases: React.js, Tailwind CSS, Bootstrap, Flask, Waitress, Firebase, MongoDB, PostgreSQL

Experience

Graduate Student Researcher **Jan 2024 – Present**
UCSC Advanced Visualization and Interactive Systems Lab *Santa Cruz, CA*
- Spearheaded a USGS-sponsored research initiative that developed machine learning algorithms to analyze webcam footage, improving shoreline movement detection accuracy by 30% and enhancing monitoring efficiency through innovative data visualization techniques.
- Conducted comprehensive research on algorithmic efficiency, achieving a 15% reduction in computation time; presented findings to industry leaders in 2 conferences, contributing to knowledge sharing within the academic community.

Teaching Assistant for Software Engineering Class **Mar 2024 – Jun 2024**
UCSC Baskin Engineering *Santa Cruz, CA*
- Led and mentored 7 teams on projects including real-time object detection, speech-to-text AI, and OCR technologies, improving project delivery timelines by 25%.
- Facilitated Agile workflows, streamlined tool integration, and managed communications between teams and instructors, ensuring timely feedback that optimized software development outcomes.

Software Engineer Intern **May 2023 – Jul 2023**
RoboticsCats — CITRIS and the Banatao Institute *San Jose, California*
- Researched and compared 5+ map APIs, integrating insights from 10+ customer interviews, resulting in a 20% improvement in wildfire risk predictions and a more targeted understanding of market dynamics for future product features.
- Led full-stack software development, building an API server that handled 10,000+ data points daily and created advanced data visualizations, improving the accuracy of geographic risk models by 30% through optimized mathematical algorithms.

Publications

RipViz: Finding Rip Currents by Learning Pathline Behavior
IEEE Transactions on Visualization and Computer Graphics

Projects

Shoreline Detection using Machine Learning Algorithms | *OpenCV, scikit-learn, PyTorch, SAM*
- Automated real-time shoreline detection in webcam video streams using holistically edge detection models and convolutional neural networks, reducing manual intervention by 80% and improving processing efficiency.
- Collected and analyzed data from over four sites with varying environmental conditions over a two-year period, enhancing the model's accuracy and reliability by 25%.
- Presented findings on low-cost webcam solutions for tracking coastal changes at the "Optimizing Ocean Observing Networks for Detecting the Coastal Climate Signal Workshop" by US CLIVAR 2024.

Environmental Impact Assessment Tool | *React.js, Tailwind CSS, Flask, Firebase, OpenAI*
- Collaborated a full-stack development project at **CruzHacks**, competing against **300+ participants**, and received the "Most Ambitious Project" award for innovation and impact.
- Created a tool designed for assessing the environmental impact of products on Amazon, using **Beautiful Soup** for data scraping and AI-powered insights to evaluate product sustainability.