QISHEN (SAM) LIANG

Los Angeles, CA 90013 | 805-627-8381 | qishenL@usc.edu | https://www.linkedin.com/in/qishen-sam-liang/

EDUCATION

University of Southern California — Los Angeles, CA
Master of Science in **Computer Science (Computer Networks)** — August 2023-May 2025

UC Santa Barbara — Santa Barbara, CA
Bachelor of Science in **Computer Science** & Bachelor of Arts in **Asian American Studies** **CGPA: 3.95** August 2019-June 2023

TECHNICAL SKILLS

- Specialized Knowledge: Mininet, Software Defined Networking, WebRTC, Operating Systems, Cybersecurity, Docker
- Languages and Tools: C++, C, Java, Python, P4 Language, MIPS Assembly, SQL, JavaScript, MS Office, Git
- Methodologies: Artificial intelligence and Machine Learning, Security Systems, Algorithms, Formal Language and Automata, Discrete Math, Data Analysis, Computer Architecture, OOP, Complexity Theory, Writing and Journalism

PROFESSIONAL EXPERIENCE

WebRTC Collection and Analysis Suite Based on NetUnicorn — UCSB Systems and Networking Lab
Undergraduate Researcher — October 2022-July 2023

- Designed and constructed a state-of-the-art Google Account automated login solution using Python and SeleniumBase to bypass bot detection (in order to auto-join online conferences)
- Enhanced the WebRTC data collection pipeline into NetUnicorn, an data collection platform built for distributed computing networks, improving customizability, scalability and efficiency
- Optimized deployment by crafting Dockerfile, saving more than 60% of time and effort compared to manual setup, and oversaw headless ARM64 OS Raspberry Pi data collections, accumulating a total of 5G of data from 3 machines simultaneously

QoE Estimation for WebRTC Video Conferencing Applications — UCSB Systems and Networking Lab
Undergraduate Researcher — September 2021-June 2022

- Engineered and developed a software based on Python and Selenium, enabling an automated end-to-end process of initiation, participation, presentation, and termination of video conferencing sessions
- Integrated and deployed a WebRTC QoS and QoE data collection pipeline to UCSB's PINOT, allowing simultaneous curation of dataset on more than 10 programmable end-hosts
- Researched 1,000+ pages of WebRTC protocols, retransmissions, and multiplexing documentations, drawing connections from RFC documentations to real world data, assisted with tools including NumPy, pandas, SQLite, and Matplotlib
- Curated more than 5 TB of data for analysis and helped formulate a research paper

ACADEMIC PROJECTS

KOS - R3000 based Operating System Development — UC Santa Barbara
Team Leader & Developer — September 2022-December 2022

- Led a 2-person team to program a Linux-based Operating System in C in 10 weeks, encompassing seamless program execution, crash-free operation, support for most Linux commands, and concurrent program execution for up to 8 programs
- Engineered a comprehensive OS capable of running programs and inter-process communication, through pipe handling, PID tracking, and memory management
- Created 30+ files and 5000+ lines of codes for system development, including debugging, updates, comments, and documents

Web Application for the UCSB CS Learning Assistant Program — UC Santa Barbara
Team Leader & Developer — March 2021-June 2021

- Developed and improved web application for managing the UCSB CS Learning Assistant (LA) program using Java, JavaScript, and the Spring Boot framework in 4-person team setting
- Proposed and resolved 6 new tasks and 2 critical bugs, applied the Agile methodology, managed and communicated via scrum meetings, and organized version control and code reviews using GitHub tools, including Kanban board and Pull Request
- Achieved 100% test cases coverage, attained perfect outcomes in final presentation and practical applications, and fulfilled all project objectives efficiently within a constrained timeline

HONORS & AWARDS

UCSB College of Engineering High Honors
UCSB College of Letters and Science Highest Honors
UCSB Asian American Studies Distinction in the Major