

Mirabel Vuong

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EDUCATION

University of California, Los Angeles

Los Angeles, CA

Bachelor's in Computer Science and Linguistics

Sept. 2023 – Dec. 2026

Related Coursework: Data Structures & Algorithms, Computer Organization, Object-Oriented Programming, Software Construction, Programming Languages, Discrete Structures, Linear Algebra

Awards: Regent's Scholar (University of California, San Diego)

SKILLS

Languages: Python (libraries: Pytorch), C/C++, Bash, JavaScript, HTML/CSS, React.js, Node.js, SageMath

Technologies: Git, Linux, XCode, Visual Studio, AWS, MongoDB, Docker

EXPERIENCE

Undergraduate Security Researcher

June 2025 – Present

MIT IEEE Undergraduate Research Technology Conference

Los Angeles, CA

- Engineered the signer identification module for a **BLS12-381-based group signature scheme** using **Python** and **Sage Math**, enabling a trusted manager to decrypt and verify the original signer of an anonymous signature with **99.9%** accuracy.
- Achieved **800+** identifications/sec at <100ms p99 latency in local benchmarks, validated against Cloudflare's HTTP Message Signatures reference implementation.
- Reduced attack surface by isolating manager private keys and enforcing constant-time point serialization, eliminating side-channel leaks.

Software Developer

March 2025 – June 2025

CreativeLabs at UCLA

Los Angeles, CA

- Developed responsive and interactive UI features in **React**, including a custom video player and dynamic user profile page with photo upload capabilities.
- Integrated frontend with **Node.js** and **MongoDB** backend APIs to support real-time profile updates (e.g., profile picture changes), ensuring data persistence and seamless user experience.
- Enabled real-time user profile updates with **20% faster data sync** compared to traditional REST polling.

TeachLA Developer Software Lead

Sept 2024 – Mar 2025

Association of Computing Machinery at UCLA

Los Angeles, CA

- Led a team of **6** to develop *Cookie Jar*, a **React** web app utilizing **TypeScript** and **MongoDB** to teach children about website cookies, overseeing feature planning and resolving merge conflicts.

STEM Library Intern

Jan 2023 – April 2023

Huntington Beach Public Library

Huntington Beach, CA

- Directed community projects for **40+** children ages 8-12 to educate participants on circuits, computer logic, and basic programming topics— including loops and functions.

PROJECTS

AWS Lambda Secure Call Assistant — GenAI Hackathon by Imeptus & AWS

July 2025

- Built a full-stack real-time call assistant using **AWS Transcribe**, **Bedrock (Claude)**, and **AWS Lambda**, enabling live speech-to-text transcription and instant response suggestions during customer support calls.
- Integrated a custom DLP and threat detection engine, identifying and flagging **100% of simulated credential leaks** during red team call simulations using **GenAI** and semantic analysis.

Adversarial Robustness Testing of CNNs with FGSM — Association of Computing Machinery

Dec 2024

- Developed an adversarial ML attack pipeline using **PyTorch** and **FGSM** to test convolutional neural network (CNN) vulnerability to small, imperceptible perturbations.
- Achieved **> 95% attack success rate** on **MNIST/CIFAR-10** datasets, containing nearly **50,000** images.
- Simulated black-box threat models to evaluate model robustness under adversarial noise, exposing failure cases in deep learning pipelines.