Mirabel Vuong

714-369-9326 | mvuong20@g.ucla.edu | linkedin.com/in/miravuong | github.com/miravuong

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, Java, JavaScript, Prolog, Scheme, Rust, HTML/CSS, React.js, Node.js, SageMath, SQL (PostgreSQL)
Technologies: Git, Linux, XCode, Visual Studio, AWS, MongoDB, Docker

EXPERIENCE

Security Research Intern   June 2025 – Present
UCLA Samueli School of Engineering   *Los Angeles, CA*
- Developed a high-performance **Python** and **SageMath** cryptographic module (BLS12-381-based) enabling real-time signature verification with **99.9% accuracy** and **p99 latency** <**100 ms**, validated against Cloudflare's HTTP Message Signatures.
- Engineered secure key management by isolating manager private keys and enforcing constant-time serialization, mitigating side-channel vulnerabilities.
- Reduced attack surface by implementing cryptographic best practices in production-ready code.

Software Developer   March 2025 – June 2025
CreativeLabs at UCLA   *Los Angeles, CA*
- Built and integrated **Node.js and MongoDB APIs** with a **React** frontend to enable real-time profile updates, improving data sync speed by **20%** and ensuring persistent, scalable user data storage.
- Designed and implemented dynamic UI components, including a custom video player and profile image upload, improving engagement and accessibility.
- Collaborated in an agile team of **8** developers, conducting code reviews and managing version control via GitHub.

TeachLA Developer Software Lead   Sept 2024 – Mar 2025
Association of Computing Machinery at UCLA   *Los Angeles, CA*
- Led a team of **6** to design and ship *Cookie Jar*, a **React + TypeScript + MongoDB** web app for children's tech education, including interactive games and progress tracking.
- Oversaw project planning, feature prioritization, and merge conflict resolution, reducing development cycle time.

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 algorithms.

PROJECTS

AWS Lambda Secure Call Assistant — *GenAI Hackathon by Impetus & AWS*   July 2025
- Developed and deployed a **serverless call assistant** using **AWS Lambda, Transcribe, Bedrock (Claude)** to process real-time audio, transcribe speech, and generate intelligent response suggestions for customer support calls.
- Integrated a custom **Data Loss Prevention (DLP)** and threat detection engine to flag **100% of simulated credential leaks** in red-team testing.
- Built a scalable architecture leveraging **event-driven processing** and **semantic analysis** to handle live call streams with sub-second response latency.

Adversarial Robustness Testing of CNNs with FGSM — *Association of Computing Machinery*   Dec 2024
- Engineered a **PyTorch** adversarial ML attack pipeline using **Fast Gradient Sign Method (FGSM)** to evaluate CNN robustness under targeted perturbations.
- Achieved >**95% attack success rate** on **MNIST** and **CIFAR-10** datasets (~50K images), identifying model weaknesses in production-level architectures.