

# Simon Zhang

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## EDUCATION

### California State University, Long Beach

*Master of Science in Computer Science*

Long Beach, CA

Jan. 2026 – Dec 2027

### California State University, Long Beach

*Bachelor of Science in Computer Science — GPA: 3.7*

Long Beach, CA

Aug. 2022 – May 2025

## EXPERIENCE

### Software Research Engineer (Federated Learning)

*California State University, Long Beach*

Jan. 2026 – Present

Long Beach, CA

- Architecting **SwiftBot**, a distributed microservices platform that orchestrates robot tasks using **Docker** containers and LLM agents.
- Reduced system cold-start latency by **95% (to 120ms)** by implementing a warm-container orchestration strategy and optimizing network overhead.
- Developing a custom **DHT (Distributed Hash Table)** overlay in Python to handle service discovery and fault tolerance across distributed nodes.

### Machine Learning Engineer Intern

*National Park Service*

Dec. 2024 – May 2025

Remote

- Engineered a scalable **AWS ETL pipeline** (S3, Lambda) to ingest and process a **90 GB dataset**, automating the transformation of raw aerial imagery for analysis.
- Deployed an EfficientDet object detection model into production using **SageMaker**, enabling real-time environmental monitoring on resource-constrained edge devices.

### Undergraduate Research Engineer

*California State University, Long Beach*

May 2024 – May 2025

Long Beach, CA

- Built a lightweight Federated Learning platform (HumanSys '25) optimized for IoT devices, focusing on memory efficiency and network bandwidth reduction.
- Designed algorithms for workload prediction using **SQL** to aggregate and analyze historical performance data, optimizing resource allocation for edge architectures.

## PROJECTS

### Lingo AI: Full Stack Language Application | TypeScript, Next.js, Firebase, OpenAI

June 2024 – Aug. 2024

- Collaborated in an engineering team to build a responsive web application using **React/Next.js** and **Tailwind CSS** for real-time language tutoring.
- Implemented **Firebase** for real-time database management and authentication, securing user session history and chat logs.
- Utilized **Git** for version control and code reviews, ensuring smooth integration of frontend components with backend API services.

### NestDetector: Cloud-Native Vision System | Python, AWS, PyTorch

Jan. 2025 – May 2025

- Designed a cloud-native vision system capable of processing large-scale datasets, leveraging **AWS Lambda** for serverless event triggers.
- Implemented automated data validation and preprocessing scripts to ensure high-quality input for model training pipelines.

## TECHNICAL SKILLS

**Languages:** Python, TypeScript, JavaScript, C++, C, SQL, HTML/CSS

**Frontend/Backend:** React.js, Next.js, Node.js, Flask, Express.js, Tailwind CSS

**Databases:** PostgreSQL (Supabase), Firebase, MongoDB, SQL

**DevOps & Tools:** Docker, AWS (SageMaker, Lambda, S3), Git, Linux, CI/CD pipelines

**Machine Learning:** PyTorch, TensorFlow, OpenCV, Large Language Models (LLMs), AI Agents