Junhua (Michael) Ma

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Sponsorship
Not Required

OBJECTIVE

Software engineer with 3+ years of experience in designing and deploying scalable systems, with a strong focus on backend development and cloud infrastructure. Skilled at collaborating with cross-functional teams to take projects from concept to launch. Known for delivering robust, high-performance, and maintainable software solutions.

WORK EXPERIENCE

Software Engineer Intern | VortexNet   **Jun.2025 - Aug.2025**

- Collaborated with product, design, and engineering teams to build a full-stack web application enabling users to generate AI-powered custom designs and place personalized merchandise orders, delivering end-to-end user authentication, order flow, and image generation features.
- Developed a **React/TypeScript** frontend and a serverless AWS backend using **Lambda, API Gateway, Cognito, S3,** and **RDS/PostgreSQL** in a **VPC**, integrated **Stripe** payments, and deployed infrastructure via **Cloud Formation**.
- Implemented a **container-based AWS Lambda** image-processing endpoint in Python with preloaded models, reducing cold-start latency by **80%** and improving response time for all users.

Research Technical Assistant | UC San Diego Health   **Mar.2022 - Jun.2024**

- Developed a cross-platform frontend using **Flutter/Dart** with **MVVM** architecture, featuring a mobile app for patient therapy check-ins and a clinician-facing web portal for streamlined data collection and management.
- Designed and deployed a scalable backend using **Node.js**, **Express** and **MongoDB** on **Heroku**, integrated multiple sensor APIs with hash-based distributed **OAuth2.0** token refresh scheduling.
- Improved data collection accuracy by **50%** and completion rates by **20%**, reduced manual data entry by **1 hour per patient weekly** through a pilot with 5 patients.

Software Engineer Intern | TRACT   **Mar.2023 - Sep.2023**

- Built a **Node.js Express** backend connected to **MongoDB**, integrating **50+** APIs and tools into a unified pipeline for generating multi-source reports.
- Designed cross-validation algorithms combining rule-based logic and **GPT-4** API to resolve inter-API data conflicts, boosting data accuracy by **30%**.
- Built **Python-based Selenium** web crawlers and incorporated **Dlib** facial recognition to reduce error rate by **60%**.

PROJECT EXPERIENCE

Facial Expression Data Collection Platform for Empathetic LLM Training   **Jan.2024 - Sep.2024**

- Built a full-stack web platform using Flask, **HTML**, and **TailwindCSS** to guide users through 275 facial expression tasks with text prompts, instructional videos, and webcam-based recording.
- Deployed backend on **AWS EC2**, with **MongoDB** and **AWS S3** for storing user sessions and media data.
- Collected over **340,000+** facial expression recordings from **2,500+** participants, building a large-scale dataset for training LLMs in emotion recognition.

Human Response Data Collection System for AI-Generated Content   **Mar.2023 - Nov.2023**

- Built a full-stack platform with **React/TypeScript**, and **Flask** to capture user facial reactions to AI generated images through webcam recording, with admin portal for real time monitoring and custom configurations.
- Collected and released the FERGI dataset with **80+** hours of facial video and **3,000+** AI-generated images from **500+** sessions, enabling research on human feedback in generative model evaluation.

SKILLS

- **Programming:** Python, Java, HTML/CSS/JavaScript, C++, Dart
- **Software:** SQL, AWS, Node.js, MongoDB, Docker, Git/GitHub, Postman, CI/CD, Stripe
- **Framework:** Express, Flask, Spring Boot, React, Flutter, PyTorch, ROS

EDUCATION

Master of Engineering EECS, *University of California, Berkeley* (GPA: 3.98/4.00)   **Aug.2024 - Jun.2025**
B.S. Computer Engineering, *University of California, San Diego* (GPA: 3.90/4.00)   **Sep.2020 - Jun.2024**