Sam Liao

Backend Software Engineer | Full Stack & LLM Applications

New York, NY | samliao08.dev@gmail.com

SUMMARY

Software Engineer with 3+ years building backend services, data ingestion platforms, and production LLM applications across Python, TypeScript, NestJS, and AWS.

Delivered a production RAG chatbot on LangChain and AWS Bedrock with Splunk observability; owned NestJS microservices serving 100K+ monthly operations; and improved reliability of ingestion pipelines running 100K+ jobs a month.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java
Backend: Node.js, NestJS, Django, FastAPI, REST APIs, GraphQL
AI / LLM: LangChain, AWS Bedrock, OpenAI APIs, RAG, Prompt Engineering, Agent Orchestration, Arize AI
Frontend: React, Next.js, Angular, RxJS, NgRx
Cloud / DevOps: AWS, GCP, Docker, Kubernetes, Terraform, GitHub Actions, CircleCI
Databases: DynamoDB, PostgreSQL, MySQL, MongoDB, Redis

WORK EXPERIENCE

Vanguard | Software Engineer — Backend & AI Platform Philadelphia, PA | Sep 2025 – Jul 2026

Python, TypeScript, NestJS, AWS, DynamoDB, LangChain, AWS Bedrock, Arize AI

- Architected and launched a production conversational AI chatbot for onboarding using Python, LangChain, and AWS Bedrock with RAG-based context management; guided 50K+ prospects through personalized flows and reduced drop-off by 26%.
- Designed and owned Responsible AI infrastructure — prompt evaluation pipelines, adversarial guardrail tests, and Arize AI observability dashboards — raising prompt-eval pass rate by 30% and cutting adversarial failure rate by 25%.
- Drove architectural decisions across AI engineering, Product, and Compliance, translating latency, cost, and hallucination-risk tradeoffs into actionable recommendations.
- Led the development of an internal AI-powered PII detection and masking tool scanning Jira/Confluence at scale, with human-in-the-loop review to tune false positives and reduce sensitive-data exposure.
- Owned the design and delivery of a NestJS draft-persistence microservice on DynamoDB, from architecture through production release, supporting 100K+ draft operations/month across 4 product lines and 9 consumer applications.

MX Technologies | Software Engineer — Data Ingestion Platform New York, NY | Mar 2024 – Aug 2025

TypeScript, Node.js, Puppeteer, Playwright, AWS

- Owned end-to-end document ingestion pipelines for 6 financial-institution connectors, processing 100K+ jobs/month from unstructured web sources in production.
- Led a reliability initiative hardening auth flows, retry logic, session handling, DOM stability checks, and error recovery for dynamic data sources — improving pipeline success rate by 35%.
- Reduced backend API response time by 30% via async execution improvements, network request optimization, and targeted debugging of high-latency workflows.

CVS Health | Full Stack Developer New York, NY | Apr 2023 – Sep 2023

TypeScript, Angular, NestJS, MongoDB, GCP

- Designed and owned the backend API layer for MinuteClinic appointment, payment, and notification workflows, building 5 NestJS APIs for patient-facing applications.
- Developed React and Angular components with NgRx/RxJS state management, improving frontend modularity and maintainability.
- Led migration of CI/CD from Jenkins to CircleCI and supported canary deployments on GKE, increasing deployment efficiency by 35%.

Rivian | Software Engineer Intern Palo Alto, CA | May 2022 – Aug 2022

React, GraphQL, DynamoDB, AWS

- Built and shipped React features end-to-end for Rivian OS internal tools, integrating GraphQL APIs with DynamoDB-backed services to process vehicle transaction data.
- Contributed to GraphQL schema design (types and resolvers) and managed AWS resources with Terraform, reducing manual redeployment overhead.

EDUCATION

Carnegie Mellon University — Master of Information Systems Pittsburgh, PA | Aug 2021 – Dec 2022

National Taiwan University — B.S., Business Administration Taipei, Taiwan | Sep 2016 – Jun 2020