Alvin Huang

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EDUCATION

Northeastern University Sep 2024 – Dec 2026
M.S. in Computer Science GPA: 4.0 / 4.0
- Coursework: Data Structures, Algorithm, Object-Oriented Design, Database System, Distributed System, Operating Systems
- Teaching Assistant for CS5001 Python Programming, Fall 2025 - Assisted 50+ students with Python fundamentals and debugging

Shanghai University Sep 2011 – Jul 2015
B.A. in Economics

SKILLS

Languages: Python (Proficient), JavaScript/TypeScript (Proficient), Java (Proficient), C/C++ (Familiar), HTML/CSS (Proficient)
Frontend: React, Next.js, Tailwind CSS, REST API, React Query / Redux (state management), Socket.IO
Backend & Frameworks: Node.js, Express.js, Prisma (ORM), SpringCloud, MybatisPlus, Kafka, RabbitMQ, Stripe
DevOps & Cloud: Linux, PowerShell, Bash, AWS (EC2, S3, Lambda, ECS), Docker, Kubernetes, CI/CD (GitHub Actions/Jenkins)
Databases & Storage: PostgreSQL, MySQL, MongoDB, Redis, Elasticsearch, Firebase, Firestore

WORK EXPERIENCE

Omron Automation (China) Company Ltd. Shanghai, CN
Senior Project Engineer Jun 2020 - May 2024
- Developed Python scripts to extract, clean, and synchronize operational data across systems, improving consistency and efficiency.
- Deployed sandbox environments using **Kubernetes** and **Terraform**, reducing environment setup time by 65%.
- Built a scalable **Selenium/JUnit5** framework for applications, achieving 92% coverage and reducing post-release defects by 30%.
- Streamlined CI/CD workflows using **Jenkins** and **GitHub Actions**, automating build, test, and deployment to reduce release cycles.
- Implemented **AWS Lambda** to automate repetitive tasks and sync **S3** data, saving 10 hours of manual work per week.
- Developed full-stack BI dashboard connecting company databases with automated data integration, reducing reporting time by 50%.

STS Certified Ltd. Shanghai, CN
Project Engineer Aug 2015 - May 2019
- Designed scalable **Python ETL** pipelines using **Pandas** and **Dask** to process over 500GB of CSV and JSON datasets efficiently.
- Built interactive **Plotly Dash** dashboards with time-series aggregation, improving analysis efficiency and decision-making by 25%.
- Unified cross-team data schemas and validation processes, reducing reporting errors and ensuring consistency across all datasets.

PROJECTS

E-Commerce Microservices Platform *Microservices, Distributed System, Cloud-Native, Full-Stack*
Stack: Express.js, Next.js, Apache Kafka, MongoDB, Docker, Nx, Prisma, AWS (ECS, EC2, CloudWatch), Socket.IO, Stripe
- Containerized and deployed **microservices** (Auth, Product, Order, etc.) on **AWS ECS**, monitored by **CloudWatch**.
- Applied **MongoDB** indexing and aggregation pipelines to optimize queries, reducing order retrieval latency by 60% for 5K+/sec.
- Integrated **Apache Kafka** to decouple multiple services, processing 2K+ events/sec with **high availability and fault tolerance**.
- Implemented MongoDB transactions and atomic operations to prevent overselling, maintaining data consistency across services.
- Orchestrated **CI/CD** workflows via **GitHub Actions**: code quality checks, unit testing, **Docker** builds, and staged deployments.

AI Travel Planner Mobile & Web Application *Serverless, API, Multi-platform (iOS, Android, Web)*
Stack: React Native (Expo), TypeScript / JavaScript, Firebase, Google Places & Maps APIs, Gemini AI
- Integrated Google **Gemini** AI to generate personalized travel itineraries in JSON format, reducing manual planning time by 80%.
- Implemented **Firebase Authentication** for user login and **Firestore** database with normalized schema design for itinerary data.
- Connected **Google Places** API for autocomplete, location search, and integrated **Google Maps** API for visualization of travel plans.

Scene-Based Music Recommender (Qualcomm AI Hackathon project) *AI, Machine Learning, Recommendation System*
Stack: Next.js, React, Python, Flask, Spotify Web API, Places365 model, Multer
- Developed a web app that analyzes uploaded images and text using **PyTorch** pre-trained models for music recommendations.
- Implemented **Spotify Web API** to fetch song information and generate recommendations; use **Multer** to handle user file uploads.
- Processed 20–50 image/text inputs per session to provide real-time music playlist recommendations with low latency.

CERTIFICATION

AWS Certified Solutions Architect – Associate Dec 2024
Project Management Professional Jun 2019