Alen Xia

Software Engineer

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SUMMARY

- **Backend developer** and **AWS DevOps specialist** with **over four years** of experience in **cloud-native** and **generative AI** application development.
- Extensive hands-on expertise with **AWS** platforms, holding multiple AWS cloud certifications.
- Extensive experience working in **English-speaking**, **multinational teams**, with a strong ability to collaborate effectively with global colleagues. Well-versed in **Agile** development.
- Proficient in **Java** and **Python**, and passionate about exploring and applying new technologies.

SKILLS

JAVA-BASED BACKEND DEVELOPMENT

- Proficient in data structures, design patterns, networking, IO, multithreading, UT, JVM.
- Experienced with the Spring ecosystem (Spring Boot, Spring Cloud) and its source code.
- Experienced with the ORM frameworks (Hibernate, MyBatis).
- Experienced with a variety of databases, including relational (MySQL), non-relational (AWS DynamoDB), key-value stores (Redis), and more.
- Experienced with the development tools (Git, Maven, Flyway).
- Experienced with the frontend-backend interface specifications (OpenAPI).

AI APPLICATION DEVELOPMENT

- Proficient in using the LangChain framework and its ecosystem technologies, including LCEL, Agent, RAG, Memory, LangGraph, and LangSmith.
- Skilled in LangSmith for debugging and evaluation.
- Experienced with the multiple vector databases such as AWS OpenSearch and Pinecone.
- Proficient in using AWS SageMaker and Bedrock for deploying machine learning models.
- Possess fundamental knowledge of PyTorch and deep learning theory.

CLOUD COMPUTING

- Skilled in building efficient cloud-native applications using AWS CloudFormation, CodePipeline, S3, EC2, Lambda, CDK and more for automated deployment and resource management.
- As an AWS DevOps specialist, designed CI/CD pipelines, managed infrastructure as code, optimised cloud resources, and ensured application scalability and high availability.

CONTAINERIZATION TECHNOLOGIES

- In-depth expertise in Docker, Kubernetes, and AWS ECS.
- Experienced in setting up and managing Kubernetes clusters on AWS.

MYSQL

- Proficient in SQL optimisation, index optimisation, and performance tuning.
- Understanding of underlying database engine mechanisms, transactions, and more.

QUARKUS FRAMEWORK

- Proficient in using the Quarkus framework and integrating it with AWS services.
- Rich practical experience solving integration and performance optimization challenges in cloud-native application development, especially using GraalVM for native image building.

EDUCATION

UNIVERSITY OF MELBOURNE
BACHELOR'S DEGREE
MARCH 2016 - DECEMBER 2019

MAJOR

COMPUTER SYSTEMS AND SOFTWARE

CERTIFICATIONS

AWS Certified DevOps Engineer - Professional

OCTOBER 2023

AWS Certified SysOps Administrator - Associate

OCTOBER 2022

AWS Certified Solutions Architect - Associate

JUNE 2022

AWS Certified Developer - Associate

OCTOBER 2021

WORK EXPERIENCE

PRICEWATERHOUSECOOPERS (PWC)
SOFTWARE ENGINEER
JUNE 2021 - JUNE 2024

WUHAN JINDOU MEDICAL DATA TECHNOLOGY
SOFTWARE ENGINEER
MARCH 2020 - JUNE 2021

MAJOR PROJECT EXPERIENCE

INTEGRATION COMPANION
PRICEWATERHOUSECOOPERS (PWC)
JANUARY 2024 - JUNE 2024

PROJECT ASPECT

Generative AI (GenAI)

PROJECT DESCRIPTION

I led the development of this project to simplify system integration. Traditional methods of data integration require extensive manual coding, which is inefficient and error-prone.

This intelligent chatbot aimed to enhance efficiency by mapping relationships between system tables, generating design diagrams with Mermaid, and ultimately creating and deploying Azure Function code for database migration.

The backend was developed in Python using the FAST API and LangGraph to interact with the chatbot.

RESPONSIBILITIES

I was responsible for technical research, solution selection and backend development.

ACHIEVEMENTS

1. Through in-depth research on LangGraph and testing different design patterns (e.g., supervisor and reflection patterns), I found the most suitable technical solution for the project.
2. Independently completed the backend development, utilizing LangGraph to precisely control and optimize the application process for high customization.

3. Designed and implemented a generative AI application capable of task delegation and maintaining consistency and coherence of contextual information.
4. Successfully exceeded initial project expectations, demonstrating project feasibility and impressing the project leader, who initially anticipated only research outcomes.

FINANCIAL ADVISOR

PRICEWATERHOUSECOOPERS (PWC)

AUGUST 2023 - JANUARY 2024

PROJECT ASPECT

Generative AI (GenAI)

PROJECT DESCRIPTION

This project aimed to provide employees with an intelligent, interactive financial advisory platform to better understand and manage their investment portfolios.

The platform featured a user-friendly chat interface where employees could inquire about current stock holdings and receive stock purchase suggestions.

The backend was developed in Python using the AWS Lambda and LangChain to interact with the chatbot.

RESPONSIBILITIES

1. In-depth study of generative AI technology, machine learning materials, and LangChain official documentation for technical selection and solution design.
2. Completed over 80% of the backend code development, ensuring functional implementation and code quality.
3. Researched and compared AWS SageMaker and Bedrock services, ultimately choosing and deploying the open-source model Claude to optimize project costs.
4. Wrote AWS CloudFormation templates to create and configure required AWS resources, achieving automated CI/CD deployment of frontend and backend.

ACHIEVEMENTS

1. Rapidly mastered generative AI-related skills by extensively researching materials, studying LangChain documentation, and practicing techniques such as prompt writing, text vectorization, using RAG, building and debugging tools and agents, injecting memory, and adjusting output format.
2. Conducted in-depth research on AWS SageMaker and Bedrock services, ultimately selecting the model Claude from Bedrock, which successfully reduced project costs while maintaining model performance.
3. Received high recognition from superiors for the project's successful completion, which exceeded expectations despite numerous challenges.
4. Gained comprehensive knowledge of generative AI projects, significantly improving both technical and project management skills, and laying a solid foundation for future participation in GenAI projects.

ENTERPRISE ORDER MANAGEMENT SYSTEM

PRICEWATERHOUSECOOPERS (PWC)

JANUARY 2022 - AUGUST 2023

PROJECT ASPECT

Cloud Native

PROJECT DESCRIPTION

A client from the US traditional industry sought to build a modern enterprise order management system to support their e-commerce transformation.

The backend was developed in Java, with dozens of sub-projects designed as microservices.

The team consisted of fewer than 10 developers from China and the US, collaborating across time zones.

RESPONSIBILITIES

1. Starting the project from scratch, led by a US architect, participated in technical selection and architecture design, contributing to the development environment setup, business requirement communication, and database design and modeling.

2. Researched and integrated Quarkus framework and GraalVM, addressing integration issues and challenges in building native images.
3. Developed Maven Archetype templates with post-generate Groovy scripts, Google CheckStyle Git pre-commit hooks, and OpenAPI Typescript-axios clients for front-end use, which streamlined the creation of subsequent microservice projects for all developers.
4. Researched and implemented Flyway for database version management and used the Spock framework for writing test codes.
5. Led the development of core interfaces and performed SQL optimisation to ensure system performance.

ACHIEVEMENTS

1. Mastered the Quarkus framework, achieving efficient microservice generation and significant performance improvements.
2. Successfully resolved various technical challenges, delivering a high-performance, stable enterprise order management system on time.
3. Received high praise from the client for the quality and reliability of the delivered solution.
4. Gained valuable experience in cross-national team collaboration, enhancing both technical and project management skills.

ENTERPRISE CLOUD MIGRATION

PRICEWATERHOUSECOOPERS (PWC)

OCTOBER 2021 - DECEMBER 2021

PROJECT ASPECT

Cloud Native

PROJECT DESCRIPTION

A prominent US insurance company embarked on a project to migrate its existing IT infrastructure and business systems to the AWS cloud platform.

RESPONSIBILITIES

Assisting the enterprise in migrating local systems to AWS. Built and configured essential cloud resources, including virtual private clouds, servers, databases, containers, code repositories, and message queues.

ACHIEVEMENTS

1. Completed all migration tasks within the scheduled timeframe.
2. Provided the enterprise's IT team with written AWS technical documentation, ensuring the team could proficiently manage and operate cloud-based business systems.
3. Successfully implemented comprehensive data security measures and compliance solutions, ensuring data confidentiality, integrity, and availability, meeting the regulatory requirements of the insurance industry.

DOCTOR ASSISTANT

WUHAN JINDOU MEDICAL DATA TECHNOLOGY

MARCH 2020 - JUNE 2021

PROJECT ASPECT

Traditional Java Web

PROJECT DESCRIPTION

Developed an assistant system for hospitals designed to help doctors manage the Diagnosis-Related Group (DRG) payment system efficiently.

The backend was developed in Java with the Spring Boot framework.

RESPONSIBILITIES

1. Responsible for version iteration and requirement development of the existing system, modifying core system code to ensure system stability and functionality.
2. Deployed and maintained the system on-site at major hospitals in Shenzhen, resolving various technical issues on-site.
3. Wrote detailed interface documentation, ensuring smooth collaboration during the development process.
4. Developed and promoted code development standards, improving team development efficiency and code quality.

ACHIEVEMENTS

1. Successfully addressed on-site deployment and maintenance challenges, ensuring stable operation of hospital systems and developing strong problem-solving skills.
2. Gained in-depth knowledge of the Spring framework, quickly mastering its core concepts and applications, and successfully applying them to project development.