Yanyuan Mo

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Education

Northeastern University Jan 2024 - Present
Master of Science in Computer Science - Khoury College, GPA: 4.0/4.0 **Expected Graduation: May 2026**
Courses: Mobile Application Development, Database Management Systems, Machine Learning, Network Structures and Cloud Computing
Chang'an University, China Sept 2013 - Jul 2020
MSc in Highway and Railway Engineering, BEng in Transportation Engineering

Skills

Languages: C/C++, C#, Python, Java, VB, R
Technologies: Git, Unity, Android Studio, Docker, SQL, MongoDB, Firebase, PlayFab, PyTorch, Tensorflow, FastAPI, RAG, Steamlit, Terraform, GitHub Actions, CI/CD, Kafka, React, AWS, Git, GenAI Tools (Claude, Gemini, ChatGPT)

Projects

Full-Stack Social Platform (Microservices Architecture) – *GitHub Repo* Nov 2024 - Mar 2025

- Engineered a social media platform from the ground up, implementing core modules for users, posts, and notifications
- Built a robust backend using **FastAPI**, securing APIs with JWT authentication
- Crafted a responsive frontend with **React** and **Material UI**, enabling seamless content feeds and real-time interactions
- Utilized Docker containerization for streamlined deployment and management, and implemented **Kafka** message queues for efficient inter-service communication, enhancing system scalability.

RAG-LLM Chinese Divination Application – – *GitHub Repo Link* Jan 2025 - Mar 2025

- Developed a RAG-based fortune-telling app combining Chinese divination books with Google Gemini via **LangChain** and **Vector DB**
- Designed containerized microservices with **FastAPI** backend and **Streamlit** frontend, deployed on AWS ECS using Terraform IaC
- Implemented **CI/CD** pipeline with GitHub Actions for automated testing, building, and deployment
- Configured **AWS** service discovery and IAM role-based security for secure container communication with least privilege

Mobile Game Development Project | Archiventure – *Link*,*GitHub Repo* Aug 2024 - Dec 2024

- Architected a cultural city builder game in **Unity** using C# with **PlayFab** backend integration
- Engineered an isometric grid system with custom coordinate mapping for intuitive building placement and management
- Designed and implemented unique upgrade progression trees for each building type
- Created resource management system where buildings generate different outputs, achievement system, and in-game shop for building purchases
- Designed a hybrid save system with PlayFab cloud storage and Unity JsonUtility serialization, implementing cross-device progression with offline capability

Real-time Chat Android Application Aug 2024 - Dec 2024

- Built a real-time messaging Android application utilizing **MVVM** architecture and Firebase for backend services
- Implemented user authentication and real-time message synchronization using **Firebase** Realtime Database
- Designed responsive UI with **Material Design** and RecyclerView, featuring emoji reactions and message status tracking

Experience

Senior Software Development Engineer, July 2020 - Jan 2024
Shenzhen Expressway Engineering Consultants Co., Ltd. – Shenzhen, China
BIM Intelligent Design Platform (Highway Edition)

- Designed and implemented the data structure and basic UI of the platform in C#, enabling users to create, edit, design, and access information on basic elements and design objects for highway route design
- Implemented, debugged, and tested the backend using C++; Designed 100+ test cases to increase software reliability
- Designed data structure wrappers to build a more generalizable framework on top of the existing backbone; Adapted it to implement new features, boosting productivity by 60%
- Developed SQL database system to search and reference similar design cases, enhancing design efficiency

Publications

Y. Mo and H. Yang, "Urban road traffic safety design", Journal of Protection Engineering, ISSN 1674-1854 (2019).
Y. Mo and H. Yang, "Research on highway 3d geological model and geological knowledge base of alternatives selection", Chang'an University. DOI: 10.26976/d.cnki.gchau. 2020.001809 (2020).