WENJIA ZHANG

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EDUCATION

Columbia University in the City of New York   New York, US
M.S. in Computer Science – Machine Learning Track   2024
- Relevant Courses: Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Cloud Computing, Software Engineering (SaaS), Databases, Artificial Intelligence

University of Electronic Science and Technology of China   Sichuan, China
B.S. in Information Security   2019
- Relevant Courses: Data Structures and Algorithms, Computer Networks, Operating Systems, Programming in C/C++, System Security, Cryptography

TECHNICAL SKILLS

- **Languages**: Python, C++, JavaScript, Swift, Golang
- **Systems & Tools**: Linux, REST APIs, TCP/IP, Git, GitHub
- **ML/AI**: TensorFlow, PyTorch, scikit-learn, SpaCy, CoreML, CreateML, Generative AI (Gemini API, OpenAI API)
- **Cloud & DevOps**: AWS (EC2, S3, ECS, DynamoDB), GCP (Compute Engine, Cloud Functions), Heroku, Hadoop, Docker, Kubernetes, Terraform, CI/CD
- **Web & DB**: HTML, CSS, React, Node.js, Flask, TypeScript, GraphQL, PostgreSQL, MongoDB, Firebase
- **iOS & AR**: SwiftUI, UIKit, ARKit, AVFoundation, Unity, CocoaPods, Swift Package Manager (SPM)

WORKING EXPERIENCE

China Mobile Communications Group Co.,Ltd.   Anhui, China
System Support Engineer, Business Support Center   2020 - 2021
- **Led** the development of a cloud-based e-commerce platform using **React** and **Python**, integrating a **collaborative filtering recommendation algorithm** based on user behavior, resulting in a **1.8% monthly revenue increase**
- Maintained and optimized **RESTful APIs** with **multi-threading** and **concurrency**, ensuring high availability and low-latency data delivery across millions of requests
- Applied **TCP/IP**, **HTTP**, **DNS**, and **SSL/TLS** protocols to strengthen secure communications in enterprise systems
- Administered **1M+ user records** via **MySQL**, implementing Role-Based Access Control (**RBAC**) to prevent unauthorized access
- Collaborated in a **12-person Agile team**, enhancing system scalability and fault tolerance of distributed infrastructure

PROJECTS

AR Flower Recognition App with CoreML (*[Demo](#)*)
- Developed an AR-based iOS app that identifies flowers in real time using **CoreML** models, delivering interactive visual recognition and live Wikipedia-sourced information via **Alamofire** and **SwiftyJSON**

Movie Chatbot Using MongoDB and OpenAI API (*[Certificate](#)*)
- Ingested and embedded movie data in **MongoDB Atlas** for vector-based semantic retrieval
- Developed a **Node.js** backend using **Express** and **Retrieval-Augmented Generation (RAG)** with **OpenAI API**
- Built a **React** frontend to enable user interaction with an LLM-powered chatbot for movie-related queries

LLM-Powered Search Optimization on GCP (*[Code](#)*)
- Designed and deployed **information retrieval** models on **GCP Compute Engine** and **Cloud Functions,** integrating **LLM** to improve query interpretation
- Applied the **Rocchio algorithm** for iterative query refinement based on user feedback, improving top-k search relevance after each iteration
- Integrated **Google Search API**, **SpaCy**, and **SpanBERT** for named entity recognition and semantic query expansion, enhancing query understanding and efficiency

Refining Visual Question Answering with VGG16 and Attentional Deep Learning
- Integrated **VGG16** with **attention** mechanisms, achieving 87.2% accuracy on Easy-VQA with **CNN** for image features and **LSTM** for question processing.
- Enhanced model generalization and robustness through **data augmentation** and **softmax fusion** strategies.
- Surpassed baseline CNN models in **complex visual reasoning** and **multimodal understanding** tasks.

Second-Hand Marketplace Platform (Team of 4) (*[Code](#)*)
- **Led** full-stack development using **Ruby on Rails**, **React**, and **Kubernetes**, deploying **microservices** with **Terraform**
- Built **REST APIs** for product creation and listings, and authentication(incl. **Google OAuth**), deployed on **AWS EC2 & S3**.
- Implemented **CI/CD pipelines** using **Jenkins**, **Docker**, and **Rspec/Cucumber** with 100% **BDD/TDD** coverage