

# WENJIA ZHANG

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## EDUCATION

### Columbia University in the City of New York

NY, US

#### M.S. in Computer Science - Machine Learning Track

May 2024

- Core Courses: Natural Language Processing; Machine Learning; Deep Learning; Computer Vision; AI; Database; Cloud Computing; Engineering Software-as-a-Service; iOS development; Cryptography.

### University of Electronic Science and Technology of China

Sichuan, China

#### B.S. in Information Security

Jun 2019

- Honor: 3rd Prize Scholarship.
- Core Courses: Data Structure and Algorithm; Computer Network; Operating System; Programming with C/C++.

## TECHNICAL SKILLS & LANGUAGES

- Tech Skills: Python, C/C++, Swift, SQL, NoSQL, Ruby on Rails, Redis, Node.js, Vue.js, Testing, Git, Linux, iOS, SwiftUI, TensorFlow, PyTorch, AWS, Google Cloud Platform, Azure, Ads, Hadoop, Microservice, Unity, ARKit.
- Languages: Chinese (native), English (proficient).

## WORKING EXPERIENCE

### China Mobile Communications Group Co.,Ltd.

Anhui, China

#### System Support Engineer, Business Support Center

Jul 2020 - Sep 2021

- Led the development of a high-volume e-commerce platform on Cloud, employing large-scale application skills, such as **Vue.js** for the frontend, and **Python, C++, C#, Node.js** for the backend. Integrated a **collaborative filtering predictive recommendation algorithm** based on users' behavior and history, **driving a 1.8% monthly revenue increase**.
- Maintained multi-threaded and concurrent **RESTful** and **GraphQL APIs** for real-time data interaction, enhancing system scalability and workflow efficiency through **CI/CD** pipelines with **Jenkins**. Utilized **Splunk** for monitoring and troubleshooting, leveraged **Infrastructure as Code** with **Terraform**, and worked with server technologies like **NPM**. Familiar with network protocols including **TCP/IP, HTTP, and DNS**, and secure communication protocols such as **SSL/TLS**.
- Developed a desktop **tool predicting** potential 5G subscribers using **decision trees**, which **reduced 5G plan acquisition costs by 6.7%** within three months. The user-friendly interface (HTML/CSS/JS) simplifies employee interaction.
- Gained experience in **agile** software development methodology, working with a 12-person team, and managing version control using **Git** for seamless collaboration.

## PROJECTS

### iOS and AR Development

Sep 2023 - July 2024

- Developed an app displaying the latest musicals in NYC, using two switches to filter the musical list. ([Demo](#))
- Developed a **video editor** app. Users can select a video from device, modify duration, record voice and merge audio with video, add text and apply a frame. Leveraged **AVFoundation** for audio recording and **AVKit** for video playback. ([Demo](#))
- Developed an **interactive face filter** app ([Demo](#)), a **marker-based AR** app by which users can toggle information and sound on and off ([Demo](#)) and a **plane detection AR** app that, upon detecting a plane, displays a window through which users can see the interior of a room ([Demo](#)).

### Movie Chatbot Development Using MongoDB ([Certificate](#))

Apr 2024 - Apr 2024

- Ingested movie data from databases into **MongoDB Atlas**, transforming it into vector embeddings for enhanced retrieval.
- Developed an **Express.js** server to handle **Retrieval Augmented Generation (RAG)** operations, integrating Atlas **Vector Search** and **LLM** (OpenAI API).
- Created a **React.js** frontend for user interaction, allowing users to ask questions about movies and receive answers.

### Intelligent Search Optimization and Data Mining on GCP ([Code](#))

Jan 2024 - Apr 2024

- Utilized Google Search API to input queries like 'Bill Gates Microsoft' and 'top employer', parsed web pages using **SpaCy** for entity recognition, used **SpanBERT** for context understanding and returned results like 'Elon Musk Tesla'.
- Demonstrated the benefit of **LLM** to improve search suggestions, **enhancing predictive efficiency** and **meeting potential user needs**. Deep knowledge of GCP services and their applications in real-time data streaming.

### Visual Question Answering with VGG16 and Attentional Deep Learning

Jan 2024 - Apr 2024

- Developed a model using **VGG16** for image feature extraction and **LSTM** for question processing, achieving 87.2% accuracy on the Easy-VQA dataset.

### Image Captioning with Multi-Head Attention and Transformer

Oct 2023 - Dec 2023

- Developed an image captioning system using multi-head **attention** and **Transformer** architecture to improve the automatic generation of captions from images, achieving a notable BLEU-4 score exceeding 60% on Flickr8k dataset.

### Collaborative Development of a Second-Hand Marketplace ([Code](#))

Oct 2023 - Dec 2023

- Led a 4-person team to develop a second-hand marketplace platform from initial design through deployment, utilizing **Ruby on Rails, React.js** for specific services, and **Kubernetes-managed microservices** architecture.
- Developed APIs for product creation feature and user signup feature hosted on **AWS EC2**, and a responsive web interface deployed on **AWS S3** for optimal viewing across various devices.
- Used **Cucumber (BDD)** and **RSpec (TDD)** for testing, achieving 100% coverage, automated infrastructure configuration using **Terraform** and leveraged **Jenkins** to automate code testing for seamless updates.