

# Zhe Wang

<https://mr-wang119.github.io/about/>

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## SKILLS

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- **Languages:** C++, Java, Python, Golang, Javascript, Objective-C, Swift
- Backend:** Spring Boot, MyBatis, Google Cloud Platform, CGI, Axios, web-scraping, RESTful API, Linux, Nginx, Protocol Buffers
- Client:** Cocoa, Android, RxSwift, React
- DevOps:** Jenkins, BlueKing CI
- Database:** MySQL, SQLite, MongoDB
- Others:** Git, Postman, WebSocket, CDN, TAPD, Design patterns

## WORK EXPERIENCE

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- **Tencent Holdings (OTC: TCEHY)** Shenzhen, China  
*WeChat For Mac* - Cocoa, C++, Unix, Swift, SQLite, CGI, Protobuf, BlueKing CI *Jul. 2020 - Aug. 2021*
  - **Cocoa:** Built 10+ new features for WeChat for Mac (<https://mac.weixin.qq.com/?lang=en>) based on Apple Cocoa. Ranked **Top 1 in Chinese Mac Apple Store Top Charts**, and has 5 million users.
  - **Storage Service:** Implemented a scalable database structure and local data service of WeChat Social Networking Services using Swift with facade design pattern and RxSwift to handle asynchronous requests and data flow.
  - **Database Optimization:** Analyzed Full-Text Search module source code in SQLite and refactored service code. Brought about **20x speed boost** and **10% reduction of database space usage**.
  - **Service Optimization:** Improved messages synchronization of WeChat by increasing packet size and batching SQLite database writes with multi-threading, enabling the service to handle the latest 24 hours of historical messages, rather than 2 hours.
  - **Network Optimization:** Optimized file download and upload logic and support for large file transfer with Mars framework, a cross-platform network library. Utilized CGI to interact with the backend and Protocol Buffers to serialize data.
  - **DevOps:** Deployed software on the CDN servers leveraging BlueKing CI.  
*WeChat For Car* - Java, Android, ADB *Jul. 2019 - Sep. 2019*
  - **Android:** Implemented WeChat for Car using Android. It was shown at **the Smart China Expo** in 2019, and Vice Premier of the Chinese State Council He Liu experienced and gave highly complimentary remarks.
  - **Components:** Accomplished a simpler way to save status information of views to help add a new float window page to the UI in Android, so developers need not save state information themselves and implement functions of going back and forward.
  - **Performance Optimization:** Detected main reason for low startup speed by monitoring stack information of Android system through ADB, **increasing startup speed by 50%**.

## PROJECTS

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- **Distributed Deposit and Transfer System** *Feb. 2022 - Mar. 2022*

A distributed system of multiple processes that maintain accounts and transactions.

  - **Communication:** Communicated with each node through **TCP sockets** using GOB encoding and **Golang**.
  - **Total Ordering:** Implemented the ISIS algorithm for the total ordering of the delivery of messages among nodes.
  - **R-Multicast:** Built a reliable multicast service over B-multicast protocol.
- **SoccerGod** *Oct. 2021 - Dec. 2021*

Full-stack website users can browse news, view teams and players, post topics and comments, and predict results to earn points.

  - **Backend:** Built **RESTful APIs** with **Spring Boot**. Stored data and models into **MySQL** and **MongoDB**.
  - **Frontend:** Created a **React.js** frontend, and integrated with backend through **Axios**.
  - **Web-scraping:** Leveraged web crawler to collect information, achieved data visualization, and trained Machine Learning models with **Python** to predict competition results.
  - **Cloud:** Deployed to **Google Cloud Platform**. Used **Nginx** for load balancing to adapt to high concurrency.
  - **DevOps:** Managed services using **Maven**. Automated build and continuous integration with **Jenkin**.

## EDUCATION

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- **University of Illinois at Urbana-Champaign:** M.Eng., ECE, Software Track Champaign, IL Dec. 2022
- **Sichuan University:** B.S., Software Engineering Chengdu, China, Dec. 2020
- **National University of Singapore:** Summer Workshop, Computer Science Singapore, Aug. 2018