Zhe (Joe) Wang

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Education

- **University of Illinois at Urbana-Champaign**: M.Eng., ECE, GPA: 3.8/4.0 — Champaign, IL Dec. 2022
- **Sichuan University**: B.S., Software Engineering, GPA: 3.73/4.0 — Chengdu, China, Dec. 2020
- **National University of Singapore**: Summer Workshop, Computer Science, GPA: 4.0/4.0 — Singapore, Aug. 2018

Skills

- **Languages**: C++, Java, Python, Golang, Javascript, Objective-C, Swift
  Backend: Spring Boot, GCP, CGI, Axios, RESTful API, Nginx **Client**: Cocoa, Android, React
  DevOps: Jenkins **Database**: MySQL, SQLite, MongoDB **Others**: Git, WebSocket

Work Experience

- **Apple Inc.** Cupertino, CA

  CoreData Intern - Swift *May. 2022 - Aug. 2022*
  - **Swift API**: Implemented Swift API for developers to easily create shared experiences of extensive sized data between Apple devices during a FaceTime call.
  - **Cloud**: Supported syncing data on different devices through iCloud using CloudKit Framework.
  - **Framework Optimization**: Reduced the workload for developers to deal with data duplication and data racing by syncing the current state of shared data via NSPersistentCloudKitContainer.
  - **Persistence**: Stored shared data on the device with Core Data Framework.

- **Tencent Holdings Ltd.** Shenzhen, China

  WeChat For Mac Full-Time - Cocoa, C++, Unix, Swift, SQLite, CGI, Protobuf, BlueKing CI *Jul. 2020 - Aug. 2021*
  - **Cocoa**: Built 10+ new features for WeChat for Mac based on Apple Cocoa. Ranked **Top 1 in Chinese Mac Apple Store Top Charts**, and has 5 million users.
  - **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.
  - **DevOps**: Deployed software on the CDN servers leveraging BlueKing CI.

  WeChat For Car Intern - Java, Android, ADB *Jul. 2019 - Sep. 2019*
  - **Android**: Implemented WeChat for Car using Andriod, which was shown at **the Smart China Expo** in 2019.
  - **Performance Optimization**: Detected main reason for low startup speed by monitoring stack information of Android system through ADB, **increasing startup speed by 50%** .

Projects

- **Distributed Data System** *Feb. 2022 - Mar. 2022*

  Distributed system that allows reads and writes to distributed objects while ensuring full ACID properties.
  - **Communication**: Communicated with each node through **TCP sockets** using GOB encoding and **Golang**.
  - **Transaction**: Supported isolation for concurrent transactions and avoided the occurrence of deadlock with **timestamped concurrency control**. Implemented **two-phase commit** to ensure atomicity.
  - **Fault Tolerance**: Used **Raft protocol** to achieve fault tolerance in the replicated service.

- **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 built and continuous integration with **Jenkins**.