

Xuesen WEN

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Education

Duke University

Master of Science, Computer Engineering

GPA : 3.8/ 4.0

Aug 2020 – Dec 2023

Related Courses: Operating System, Computer Network, Algorithms, Software Engineering, Engineering Robust Server Software, Computer and Information Security, Performance Optimization and Parallelism, Cloud Data Engineering

University of Nottingham, UK Campus

Bachelor of Engineering, Electronic & Computer Engineering

GPA: 3.5/ 4.0

Sep 2016 – Jun 2020

SKILLS

Programming Languages: Java, C/C++, Python, Go, Verilog, JavaScript

Tools: Git, Linux, Shell, Valgrind, GDB, Vim, Gradle, Junit, Bootstrap, React, MySQL, Docker, Postgres, AWS S3, Hive, ClickHouse, Google protocol Buffer, Google Cloud, SpringBoot, SpringMVC, MyBatis, Kafka, Redis, Elasticsearch, Firebase

Experience

DiDi (equivalent of Uber) | Full-stack Software Engineering Intern – Beijing

Jun 2023 – Sep 2023

- Constructed DiDi's new generation of dispute resolution system, moving opaque end-to-end machine learning model into derivation logic and basic capabilities to improve reusability of judgments on driver, serving 5 million orders request per day.
- Developed a tool to visualize the decisions made by the system so algorithm engineers and business colleagues can refine machine learning models and rules' implementation as well as resolve specific customer cases from hour level to real-time.
- Migrated data storage for this system from **Hive** to **ClickHouse** to implement real-time query for online analysis.
- Utilized **React** based Alibaba **Ant Design** framework to render judgment tree for online mode and forecast mode, integrated querying data from **Amazon S3** (forecast) and ClickHouse (online) via **Python Pandas** library.
- To continuously improve accuracy of the system, developed a simulation tool that determines if proposed machine learning model and rules meet precision and accuracy goals based on labeled data.

ePatentManager | Mobile Software Engineering Intern – Virginia Beach, VA

Jun 2021 – Aug 2021

- Implemented an **Android** mobile app that can estimate patent's price based on research paper and patent.
- Led **scrum meeting**, dividing service module to detailed tasks and resolving merging conflict with source control tool.

Projects

Online Shopping Distribute System (Spring Framework, MySQL, Redis, MyBatis, RocketMQ, Elasticsearch)

- Architected a robust online shopping distribute system that can handle Prime Day Sale events up to 100K QPS traffic.
- Built set of **RESTful** API with **Spring Boot/MVC** to serve customer requests with **MyBatis** integrated with **MYSQL**.
- Leveraged **Distributed Lock** mechanism with **Redis** and **Lua Script** to implement the caching inventory Lock and Revert of Try-Confirm-Cancel pattern to completely prevent oversold event.
- To achieve peak load shifting for Prime Day Sale event, utilized **RocketMQ** to handle burst traffic requests as asynchronous jobs, significantly reducing 95% invalid request reach to **MYSQL**.
- Improved Product Search experience from **MySQL** fuzz query to **Elasticsearch**, enhancing search performance by 90%.
- Configured the microservices with **Spring Cloud Gateway**, **Consul**, and **OpenFeign**, deployed to **distributed clusters** to keep service high availability.

Mini-Amazon and Mini-UPS (React, C++, Python, Django, Google protocol Buffer, gRPC, Postgres, Docker)

- Developed a delivery platform, simulating the whole process from buying products to getting package delivered.
- Utilized **React** and **Redux** for efficient management of complex application state, defining and organizing the state tree, performing actions to update the state, and utilizing reducers for immutable data handling.
- Used **Google Protobuf** and time-out based retransmission mechanism(RPC calls) to serialize data among Amazon, UPS.
- Managed **Docker images** using **Dockerfile** and shell script. Utilized **Kubernetes** for efficient cluster orchestration.
- Deployed application to **CI/CD** pipelines with **Github Action**, automating builds, testing, and deployments.

Around: a Geo-index based social network (Go, Google Cloud)

- Built a scalable web service in Go to handle posts and deployed to **Google Cloud** (GAE flex) for better scaling.
- Used **Google Dataflow** to implement a daily dump of posts to **BigQuery** table for offline analysis.

Operating System Project (C, Kernel Programming)

- Implemented system calls, signal alarm, lazy allocation feature of heap memory, copy-on-write fork(), kernel thread, log-structured file system on xv6 operating system. Developed heap manager library and read/write lock library.