JUNXI HE

+1 518-720-4652 • junxihe@cmu.edu • Pittsburgh, PA, United States

EDUCATION

Carnegie Mellon University   Jan 2023 - May 2024
Master of Science in Information Networking   GPA: 3.8 / 4.0
Rensselaer Polytechnic Institute   Aug 2020 - Dec 2022
Bachelor of Science in Computer Science   GPA: 3.9 / 4.0
Relevant Courses: Computer Systems, **Cloud Computing**, **Database Systems**, **Compiler Design**, **Operating System**, **Storage System**, **Parallel Programming**, **Distributed Systems**, **Principle of Object-Oriented-Design and Agile**

TECHNICAL SKILLS

Programming Languages: Golang, Python, C / C++, Rust, Java, JavaScript / TypeScript, CUDA, Scala, Solidity
Development Tools: Linux, Git, AWS, Azure, GCP, Terraform, Docker, Kubernetes, MySQL, PostgreSQL, HBase, DynamoDB, Neo4J, MongoDB, Redis, Jenkins, Kafka, Spark

PROFESSIONAL EXPERIENCE

CMU School of Computer Science   Dec 2023 - May 2024
Cloud Developer & Teaching Assistant   Pittsburgh, PA
- Designed and implemented an authentication service supports both **RESTful** and **gRPC** with **Protocol Buffer** for students to access restricted resources.
- Implemented **automated benchmarking** with **Bash** and **Python** to analyze performance of **Kubernetes** clusters under different web frameworks, instance types, and other deployment strategy.
- Developed an auto-grader using **Python** and **Locust**. Deployed using **AWS Auto Scaling Group** to scale in and out based on concurrent student submissions.

FedEx   Jun 2023 - Aug 2023
Software Engineer Intern   Pittsburgh, PA
- Joined the Linehaul team to develop and maintain the route management system for FedEx's package transportation.
- Implemented Restful-APIs for Linehaul Planning Tool using **Java** and **Spring Boot** and integrated data into **SQL Server**, enabling location search by abbreviation and relay-loop construction for trailers.
- Streamlined **CI/CD** pipelines, automated builds, testing, and deployments to between different stages using **Jenkins**.
- Wrote testable and secure application, kept 80+% code coverage with unit test via **Junit** and **Mockito**.

RCT.AI   Aug 2021 - Dec 2021
Software Engineer Intern   Burbank, CA
- Functioned as part of software development team working on Mirror World, a trading platform for blockchain users, utilizing **Golang**, **MySQL**, and **AWS** to improve users' trading experience.
- Developed **RESTful APIs** for users, transactions, and rankings using **Gin** and **Gorm**, integrated transaction data into **MySQL**, uploaded user static profile into **S3**. Achieved high availability using **Docker**, **AWS EKS**, and **AWS ASG**.
- **Built ETH-Cache from scratch** that caches hot data into **Redis**, integrates **MySQL** as persistent storage, and serves 5,000+ requests/day from other internal services.

SELECTED PROJECTS

High Performance User Analysis Service
- Ranked **1st place** among 20+ other teams in CMU with 1 less manpower than all other teams.
- Utilized **PySpark** to process 1TB+ raw data of Twitter Users. Took advantage of **MySQL** for **normalization, denormalization and pre-calculation**, significantly reduced SQL query time and gained **100x speed up**.
- Implemented multiple different micro-services using **Golang**(Fiber), such as QR Code generation, and Twitter User recommendation services, reached 30,000+ QPS with $0.65/hr cost on AWS.
- Deployed **services and MySQL clutser** inside a **Kubernetes cluster** on AWS using **kOps** to scale in/out the service.

Cloud File System
- A cloud file system that extends local storage with cloud storage(AWS S3) and achieves faster speed using **C++**.
- Developed a **FUSE-based** file system that supports most of **Virtual File System** interfaces, including: mkdir, open, read, write, chmod, and etc. **Snapshots** and **Write Ahead Logging** are implemented in order to protect data integrity.
- Utilized **Block Level De-duplication** to save space and improving small file accesses by taking advantage of cache.