YANXIN XIANG

+1(224) 382-3306 ◇ Evanston, IL
mail ◇ Linkedin ◇ Github

EDUCATION

Master of Computer Engineering Sep 2022 - Expected Mar 2024
Northwestern University

Bachelor of Computer Science Sep 2018 - Jun 2022
University of Electronic Science and Technology of China

SKILLS

Language	C++, Rust, Python, Golang, Java, Node.js, Javascript
Skills	MySQL, PostgreSQL, Redis, MongoDB, SpringBoot, Django, Gin, Echo, gRpc,HTML,CSS
Familiar Database	MYSQL,PG,RocksDB,Cassandra,TiDB
Others	Git, Jenkins, AWS, Docker, Kubernetes, HDFS, Spark, TensorFlow, Pytorch, Numpy
Game structure	Unity Networking, Photon, Mirror, Colyseus

EXPERIENCE

Software Engineer Intern Apr 2023 - Oct 2023
Tencent *Shenzhen, China*

- Working on the **SQL engine** team of **TDSQL**, the TPC-C test **ranked 1** distributed database.
- Helping to add **query compilation** part and using **LLVM** to add JIT support for SQL proxy. Use LLVM to create multiple operators such as scan and hash join. Helped increase **QPS** by **18%**.
- Replaced the embedded database of sql engine from **MYSQL** to **DuckDB**. Increasing TPS by **9%**.
- Refactored the logical optimization code of the SQL engine, allowing **30%** more sql to be pushed down to the database for execution and optimized the asynchronous thread logic of distributed transactions(xa transaction), increasing the running speed by **20%**
- Helping to add procedure feature for SQL engine, make it feasible for both single backend and distributed backend.
- Adding Check Constraint functions support for Tencent Computing Engine TDSQL and helps 10 banks to properly insert data to right place
- Adding **3-phases** distributed transactions thread for xa transactions

Software Engineer Intern Oct 2023 - Dec 2023(expected)
ByteDance *Guangzhou, China*

- Working on ByteDance Game server team. Use the I/O multiplexing model of **Epoll + LT** mode, and combine it with **non-blocking I/O** to implement the master-slave Reactor model.
- Adopt the "one loop per thread" thread model and encapsulate the thread pool upward to avoid the performance overhead caused by thread creation and destruction.
- Use **eventfd** as the event notification descriptor to facilitate efficient dispatch of events to other threads to perform asynchronous tasks and improve the throughput by **30 percent**.

Software Engineer Intern Apr 2022 - Aug 2022
Sunmi *Shanghai, China*

- Making toB web service for managing business monitor and electronic price tag. Using **go-kit** to realize **gRPC** services. Adding distributed tracing **Jager** to 12 Programs and adding **Kong** gateway plugins to Making the service **30%** faster than original thrift and more reliable to locate errors
- Optimized the structure of **influxDB** to make it more compatible with device protocols, increasing the log speed by **6%**
- Making API for customers to choose and edit commercial advertisements to display on their devices. Also making functions
- for controlling remote devices via **MQTT** and **Kafka**. Helping the to arrange **2000000** ads on **100000** machines.

Software Engineer Intern Jun 2020 - Jul 2020
Hwadee Information Technology *Chengdu, China*

- Crawl the data of COVID-19 around the world and store them in **HDFS**. Use Spark to store data in the **MySQL** database.

- Create a front-end web page with **React**, **HTML** and **CSS**. Using **SpringBoot** to write the back-end and using **RPC** structure to reduce **40%** processing time
- Using Spider to get data and store in **HDFS** database then using **Spark** to process data

PROJECTS

Relation Database Implement a completely tradition RDBMS including SQL parser,SQL optimizer(logical and physical), Storage layer(b+ tree), Transaction. (code)

KV storage engine Implement an LSM-tree based K-V storage layer, including WAL, memTable and SstTable which is alike LevelDB (code)

C Style Compiler Using **C++ pegtl library** to build a parser for programming languages, implement multi-level Compiler, with many modern Compiler optimizations. Translate C program language to IR,using LLVM to do optimization on IR and finally lead to an **X86 assembly** code that could run on Linux and Windows. (code)

Bitcoin Client Implement a Bitcoin client which includes Merkle Tree, Mining, and Transaction. Deploy the client on local computer to mine bitcoin. (code)

Backup Software Realized a file backup software capable of encrypting and decrypting files, compressing and decompressing, real-time incremental backup, and supporting P2P transmission (code)

MYSQL Proxy using mysql-lib and bthread to build a mysql proxy Compatible with mysql protocol, can receive and send mysql protocol packages to back-end mysql instances

PUBLICATION

Xiang Y. Comparison on unsupervised person re-identification: methods and experiments[C]//Second IYSF Academic Symposium on Artificial Intelligence and Computer Engineering. SPIE, 2021, 12079: 308-314.