JIAXIN LIU

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EDUCATION

Brown University,Providence, RI — May 2023(Expected)
Master of Science in Computer Science (GPA: 4/4)

University of Electronic Science and Technology of China, Chengdu, China — Sept 2016 — June 2020
Bachelor of Engineering in Computer Science and Technology (GPA: 3.85/4)

PROJECTS

Brown University CSCI1680:Computer Networks(Go) — Sept 2022 — Dec 2022
Snowcast, an Internet Radio Broadcasting Station

- The server will accept connections, receive command messages from client controllers, update metadata about filenames in stations and send UDP data to client listeners.
- The client controller will scan CLI, send it to channel and CLI and handle reply messages from server.
- The client Listener will create a UDP listener and receive bytes of each station from the server.
- Add support for adding and removing stations while the server is running through the command line interface

CMU 15-445/645: Database Systems(C++)
BusTub, a relational database management system

- Implement a Parallel Buffer Pool Manager based on LRU Replacement Policy.
- Impose a hash table using the Extensible Hashing Scheme that supports bucket splitting/merging.
- Achieve iterator query executors that are responsible for taking multiple query plan nodes and perform operations like access methods, modifications and miscellaneous.
- Implement a lock manager with 2PL scheme and Wound-Wait deadlock prevenation method.

MIT 6.824: Distributed Systems(Golang)
MapReduce system and a fault-tolerant key/value sharded storage system

- Implement a coordinator process that hands out tasks to workers and copes with failed workers and a worker process that calls application Map and Reduce functions and handles reading and writing files.
- Implement Raft leader election, append new log entries, replicate leader's log on followers, trim log of leader when size of Raft state exceeds threshold, intall snapshot to followers, save and restore non-volatile state.
- De-duplicate Put/Append using maximum sequence ID of each operation and force clients to send all Gets to leader and stub them into raft log to achieve linearizability.
- Implement the shard controller that manages a sequence of configurations and supports load-balance.
- Add daemon to periodically pull configuration from shard controller, request for comeInShards to optimize shard migration and collect garbage shards to save space.

Brown University CSCI1310:Fundamentals of Computer System(C/C++) — Feb 2022— May 2022
Supervisor: Prof. Malte Schwarzkopf

- Speed up reading and writing of data to and from a filesystem using file I/O cache.
- Write OS kernel code that implements the virtual memory architecture and a few important system calls.
- Implement the multi-threaded backend of a Venmo-like banking service and a synchronized data structure.
- Accomplish a distributed, sharded key-value storage system that stores data for a social media platform.

Brown University CSCI1320:Modern Web&Mobile Applications(Vue.js) — Jan 2022 — Feb 2022
Task Manager, a full-stack web programming app

- Skech Vue.js app template with HTML,CSS and JavaSript and deploy it in Heroku.
- Implement 4 TaskAPIs on FrontEnd and send permissions through axios to retireve data.
- Connect the server to MongoDB and load collection in database using Express.js.

TECHNICAL SKILLS

System programming: Go(Proficient), C, C++, MySQL, Java
Web programming: Python, Vue.js, SCSS, HTML5/CSS Node.js, Express.js, Mongodb
Deep Learning framework:Tensorflow, Pytorch