Yongzhao **Li**

Backend Engineer · Software Engineer

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Experience

Blockchain-based Federated Learning System

RWTH Aachen University

Software Engineer & Master Thesis — *Mar. 2022 - Exp. Sept. 2022*

- Built a blockchain platform with *hyperledge fabric framework* on which a Federated Learning system was deployed.
- The model aggregation in the Federated Learning system was refined and improved by overriding the network communication protocol with the *Hypercube P2P* topology network model.
- Created a trading system on the blockchain platform for models and data trading.
- Deployed on multiple servers with *Docker* and *Kubernetes*.

Blockchain Hackathon

Germany

Backend Engineer — *Nov. 2021*

- Built a blockchain platform according to *JD Chain* and integrated it with a simple machine learning platform.
- Created trading samples with the use of smart contracts to simulate models and data trading. Implemented smartcontracts for trading on the chain.
- A web application was developed with the facilitation from *go iris* in backend to provide an end-to-end experience for user to simulate trading.
- Review of Hackathon: AISpace.

Shanghai Nengjiao Network Technology Co., Ltd.

Remote Work, Part Time

Tech Lead & C++ Linux Server Engineer — *May. 2022 - Jul. 2022*

- Developed a linux server program with epoll model to connected multiple embedded devices, which is capable of accepting connction requests from devices, recieving heartbeat packets and requesting from the backend service.
- Designed a thread pool and a task queue that can forward packets for the targeting devices. The task queue is implemented by submitting tasks the thread pool. In addition, a message queue that implemented with C++ template was built as a critial section to guarantee thread synchronization.
- Implemented a connection pool that used for connecting and proxying access to the database, where the pool size can be dynamically adjusted in running time to wisely allocate the connection resources.

Tech Lead & Backend Engineer — *Mar. 2022 - Jun. 2022*

- Refactor the system with a microservices framework, *Tars* on which creating a C++ backend framework and a go backend framework to fit, and wired them up by developing an Object Relational Mapping and adjusting the business code.
- Those two backend frameworks both include http context, dynamic router implemented with a trie tree, route group control, middleware design and error handling mechanism.
- Implemented a connection pool that used for connecting and proxying access to the database.
- Refactor business code to fit in those two backend frameworks as well as *Spring Boot* in *Tars*.

Tech Lead & Backend Engineer — *Sep. 2021 - Feb. 2022*

- Implemented backend with python *Django* framework.
- Implemented a *Single Sign On* system with *JSON Web Token* on authentication and authorization for different applications on stateless login status.
- Tailor-made software development with *apinto*, a microservice gateway, and added a *JSON Web Token* authentication and authorization plugin in gateway.
- Deployed on a distributed system, multiple servers with *Docker*.

Tech Lead & Backend Engineer — *Mar. 2020 - Jun. 2020*

- Implemented backend with python *Django* framework and frontend with *vue*.
- Developed authentication and authorization with JSON Web Token by implementing a access token and a refresh token for stateless login status.

Tech Lead & Fullstack Engineer — *Nov. 2019 - Mar. 2020*

- Designed the whole architecture for the platform and built a machine learning and mapreduce platform for data prediction in different models.
- Implemented backend with *go iris* and frontend with *vue*.
- Implemented a machine learning platform for data preprocessing and data training with *sparkML* library, a mapreduce framework.
- Mainly deployed *Xgboost* model and *lightgbm* model for data regression analysis on the platform.
- Deployed on a distributed system, multiple servers with *Docker*.
- Main Page: Joinercast

Personal Blog & Main Page

Fullstack Engineer — *Sept. 2019 - Dec. 2019*

- Created a C++ backend framework to fit *Tars* and implemented frontend with *vue*.
- Implemented a connection pool for connecting and proxying access to the database.
- Deployed on a distributed system, multiple servers with *Docker*.
- Main Page: About me

Open Source Contribution

DCache

C++ Developer

- Dcache, a distributed NoSQL storage system based on Tars, both open source by Tencent.
- Repository: Tencent/DCache.
- Pull issues, fix issues and improve documetations.

Education

RWTH Aachen University

Aachen, Germany

M.S. in Computer Science

Oct. 2018 - Exp. Oct.2022

- Grade: 2.3/1.0

Guangdong University of Technology (GDUT)

Guangdong, China

B.S. in Computer Science

Sept. 2014 - Jun. 2018

- Grade: 2.2/1.0

Honors & Awards

Domestic

2021	**Best Technical Implementation and Industry Challenge,** Blockchain Hackathon	*Germany*
2016	**3rd Award,** Oracle Java Development Program Competition	*China*

Skills

Programming	C++, Go, JAVA, Python, C#, PHP, Javascript, SQL, R
Back-end	Tars(Microservices), go iris, Spring Boot, Django, Laravel, REST API
Front-end	Vue, React, HTML5, CSS
Database	MySQL, MongoDB, Redis, DCache
DevOps	Docker, Kubernetes
Build Tools	Makefile, CMake, QMake, Maven
Tools	Linux maintenance, Git