

# Jiangkun QIU

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## ⚙ Skill Set

- Programming experience for 10 years since 10
- Trained intensively in algorithms and data structures and get awards in Informatics
- Familiar with C++, Java, Python, Rust and Scala, GoLang
- Basic experience in JavaScript, HTML, PHP, C#, SQL, Bash
- Hands-on experience in Linux and git on daily basis for years
- Comprehend operating system, network, machine learning, deep learning, Kafka, K8S, Netty, Disruptor, concurrent programming, JVM optimization

## 🎓 Education

Hong Kong University of Science and Technology, China

Sep 2020-Now

Computer Engineering major

## 👤 Working Experiences

Internship Server Arch	Beijing ByteDance Technology Co., Ltd.	Apr 2022-Sep 2022
<ul style="list-style-type: none"><li>• Propose and implement independently git-fuse, which is a ultra fast git tool combined with FUSE, solving the slow cloning problem of huge repos while using codegen tools. It minimizes the total processing time to 1/20, disk usage to 1/100, used in Overpass. And hosted a tech talk within the company, with 100+ audience</li><li>• According to the company's demand, write a universal and customizable API Linter, supporting both ProtoBuf and Thrift, running as a CLI tool and an gitlab CI task</li><li>• Maintain and improve on DevFlow, letting it support more products. It's a platform that integrates a fluent online editor, peer review for API changes, linting, compatibility check, code generation</li><li>• Maintain and improve on Overpass, a widely used platform that collects RPC definition files and generate RPC client for other go projects</li></ul>		
Full-time Backend Dev	ERX Inc, Thailand	Mar 2022-Aug 2022
<b>Context:</b> Rewrite ERX.io, the only licensed "digital asset" exchange in Thailand		
<b>Content</b> <ul style="list-style-type: none"><li>• Rewrite a Tezos smart contract from the obscure Haskell Morley to clear SmartPy code</li><li>• Build the exchange from scratch, involved in regulatory compliance, architecture, database design, API design and development, matching engine MVP development</li><li>• Research on cryptography and HSM, implement wallets for crypto on-chain transaction signing</li></ul>		
Full-time Backend Dev	Infinity Force Inc, Singapore	Feb 2022-Apr 2022
<b>Context:</b> Build an account rental platform for the game Axie Infinity		
<b>Content</b> <ul style="list-style-type: none"><li>• Implement Infinity Force Token in Solidity</li><li>• Optimize the original Python+Postgres backend stack with Rust.Optimize workflow with Code Generation</li><li>• Exploit the private APIs of the game to manage NFT assets with web3 package on the platform</li></ul>		
Backend Internship	Shanghai Rangchuan Information Technology Co., Ltd.	Dec 2020-June 2021

- Distributed Rate Limiter: Implemented a modified version of the Sliding Log algorithm With Akka and Redis, to restrict service usage for each user and API. This solved the incapacity that distributed nodes cannot constrict use rate within a small number after load balancing with Ingress in K8S
- WeChat Work Third Party Application: Developed a WeChat Enterprise third-party App prototype with Python to boost intelligent hiring
- Slow Speed Refresh Service: Read changelog from PostgreSQL, clense changelog for each tenant company and write to different Kafka topics according to configuration; Implement a Slow Speed Refresh Queue and its Web Dashboard for internal use with restricted SQL injection

Part-time Job	High Frequency Trading of Cryptocurrencies	Jul 2020-Feb 2022
<ul style="list-style-type: none"> <li>• Developed, from scratch in Rust, a set of libraries to collect and process data from dozens of trading platforms. Utilize cache line, lockless ring buffer, etc, to implement a 1:1 thread model and boost performance. Implemented a UDP proxy to work around AWS whitelist.</li> <li>• Set up a web-based monitoring system with InfluxDB ReactJS, Flask and Plotly Dash</li> <li>• Built a distributed backtesting system. Collect data from trading platforms to Kafka, and automatically deploy backtesting tasks to AWS autoscaling groups with ansible, then collect backtesting data to PostgreSQL and TimescaleDB.</li> <li>• Implemented a json deserialization library with Rust procedural macros and outperform the classic deserialization Serde library by 1x.</li> </ul>		

## Projects

School Research	The SHLL Programming language	Jan 2022-Now
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**Reasons:** SHLL is a programming language for researching high-level compiler optimization, hoping facilitate development of High-Frequency Trading software. SHLL is originates from a similar school project, which has serious practical problems. SHLL uses a different code base, and has consideration towards engineering, aesthetic and agronomical factors

**Development:** Build a user-friendly, beautiful language, which utilizes specialization and inlining to eliminate abstraction cost, achieving the real zero-cost abstraction. Common optimizing techniques like graph-based effectness dead code elimination are also developed.

Personal Project	Unidef inter-languae type system	Jul 2021-Now
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**Context:** Unidef a tool for type to type conversion across languages, for code generation and transpilation. Written originally in Python but written in Scala

**Content:** Maintain a set of ASTs, which try to keep all nuance of source languages and be language netural and consistent. It supports JSON, Json Schema, FIX, primary programming languages. It's also the base for SHLL

## Awards and Certifications

• China Computer Federation Certified Student Member	Jul 2019-Now
• First Prize in the High School Group of National Informatics Olympiad in Provinces	Nov 2017, Nov 2018
• Gold Award of RoboCom2018 Global Championship(Robot Competition)	Jul 2018
• Second Prize in 2017 Tsinghua University Dengfeng Cup Data Mining Competition	Jul 2018
• National Computer Rank Examination Level 4, Network Engineer	Nov 2016
• First Prize(6th) in the Middle School Group of National Informatics Olympiad in Provinces	Oct 2016
• First Prize(1st) in national finals of 19th He Education Cup Computer Competition	Jul 2016