Lili Liang

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Education

Carnegie Mellon University Mountain View, CA
Master's degree, M.S. in Software Engineering 08/2024 – 12/2025

Northeast Normal University Changchun, China
Bachelor's degree, B.Eng. in Software Engineering 09/2017 – 06/2021

Technical Skills

Programming Languages: Golang, Java, C/C++, SQL, Python, JavaScript, HTML/CSS, Markdown
Frameworks: RPC(Thrift), RocketMQ, Kafka, SpringBoot, MyBatis, Node.js, Zookeeper
Databases: MySQL, Redis, ElasticSearch, Hive, MongoDB
Tools and Services: Linux, Git, LaTeX, Swagger, Google Cloud Platform, Amazon Web Services

Work Experience

TikTok Shenzhen, China
*Backend Software Engineer **Full-time**, Global E-Commerce Fulfillment Group* 07/2021 – 10/2023

- **Merchant Fulfillment**: *Core developer*. Led the development of multi-end merchant fulfillment capabilities, successfully launched 23+ MVP and large-scale cross-functional projects, supporting the growth of global daily order volume from 56k to 10 million.
- **OpenAPI**: *System owner*. Restructured historical architecture and resolved 16 critical bugs, implementing multiple system capability optimizations. Led the establishment of interface change standards, providing robust OpenAPI fulfillment capabilities for ISVs.
- **Stability Construction**: *System owner*. Developed and implemented comprehensive troubleshooting tools, including a full-link reporting SDK, data cleaning processes, and a full-scenario data dashboard. These tools achieved 80% trace coverage and a monthly average manpower saving of 3.479 person-days.
- **Achievement**
  - ***Exceed Expectations* (E) Performance Rating and promoted (Top 1%)**
  - Global E-Commerce *Spot Bonus* Award, Outstanding Job Performance

Project Experience

Malloc - Dynamic Storage Allocator in C, @CMU CSAPP Lab 10/2024
Independent project. Technologies: C, Segregated Free Lists, Boundary Tags, Optimization Techniques

- Developed a high-performance memory allocator with segregated free lists, footerless, and mini block optimizations, enhancing memory utilization and reducing fragmentation, fully compatible with 64-bit architecture.
- Improved throughput by 140x in the checkpoint version with a segregated free list (14,000 ops/sec and 58.9% utilization) compared to the starter code's 10-100 ops/sec and 59% utilization.
- Further optimized in the final version by adding footerless blocks and mini block optimization, achieving 74% utilization (1.25x increase) with 12,000 ops/sec throughput.
- Built a Heap Consistency Checker to validate allocator robustness across complex traces.
- **Result**: Achieved **full marks** on the Autolab C (Intel Xeon Gold 6132 @2.60GHz) machine, with memory utilization and throughput significantly exceeding baseline requirements.

Fulfillment Decision System and Configuration SDK Project, @TikTok 09/2022 – 11/2022
Project Owner. Technologies: Golang, KiteX, RocketMQ, SDK, RPC, Metrics, Grafana

- Built an action decision system to encapsulate business decision logic, enabling configurability, grayscale release, and exception rollback.
- Transformed 25 business rules into rule expressions for the MVP, creating a rule engine for logical evaluations.
- Leveraged the TCC component to configure, manage, and update business rules, completing configuration management of business rules.
- Developed an action verification service with SDK and RPC integration options, ensuring high availability by preventing single-point failures.
- **Result**: Achieved 1.1k QPS on SDK and 115 QPS on RPC for B-side business within 3 months of launch.