Lyu Zizheng

+6583423169| lyuzizheng@gmail.com | linkedIn/lyuzizheng | Zizheng's Blog Site

STRENGTH SUMMARY

An engineer at heart and a builder by nature, bridging deep systems craftsmanship with genuine user empathy. From weathering high-concurrency storms at TikTok to orchestrating deterministic fintech workflows at Wise, I thrive on bringing zero-to-one products to life while lifting the team around me. More importantly, values engineering ethic and believes good software products must do good to societies.

EDUCATION

B.Eng. (Honors) in Computer Engineering SG | Aug 2017 – May 2021
Nanyang Technological University (NTU)
Scholarship: Full NTU Science and Engineering Undergraduate Merit Scholarship

WORK EXPERIENCE

WISE | Product Engineer 3 (Tech Owner) SG | Nov 2024 – Present

- AI Workflow Platform & Evaluation Infrastructure: As Tech Owner, established the technical roadmap for regional platform tooling; engineered the core AI Evaluation Platform with live baseline monitoring and Ops double-blind audits, enabling regional teams to self-serve custom payout defect automations.
- Last-Mile Payment Linking AI Workflow: Initiated and led end-to-end delivery of a deterministic DAG state machine for unallocated funds matching with a junior engineer; tuned workflow to **99.8% precision** and **40% recall**, automating 30,000+ monthly defect cases and yielding **£80,000/month direct operational savings**.
- Centralised Cross-Team Escalation Platform: Led the architecture and cross-team rollout of a Kafka-based orchestration service to replace fragmented Slack/Zendesk handoffs across CS, PayOps, Fraud, and KYC; authored client integration SDKs standardizing lifecycle protocols across primary operational corridors.

MARIBANK (SEA GROUP) | Senior Backend Engineer SG | Apr 2024 – Jul 2024

- Digital Banking Credit Core: Engineered credit core services (Cashloan & SME Termloan) in Java; implemented state-machine workflows ensuring phase-wise strong consistency via database transactions and idempotency, coupled with eventual consistency across the end-to-end loan lifecycle.

BONDEE | Senior Software Engineer (Employee #1 in SG) SG | Sep 2023 – Apr 2024

- Founding Infrastructure & Observability Pipeline: Joined as Employee #1 in Singapore; architected a self-hosted log collection and observability pipeline using Vector (DaemonSet), Kafka, and ElasticSearch, replacing costly cloud logging services.

BYTEDANCE | Senior Backend Engineer SG | Jan 2021 – Sep 2023

- TikTok Instant Messaging (IM) Core Architecture
  - Online Presence Engine: Architected a dynamic active-friend cache with 5-minute heartbeat TTL to mitigate multi-million QPS broadcast storms; eliminated $O(N \times M)$ write amplification by restricting fan-out strictly to active online friends, balancing presence freshness against user engagement.
  - Real-Time Typing Indicators & Read Receipts: Unified typing signals and read receipts into a dedicated low-latency bypass pipeline to resolve causality inversions (typing before read); anchored read cursors to canonical message ID timestamps to eliminate multi-DC clock skew and state divergence.
  - Multi-DC Replication & Cold-Start Recovery: Co-engineered cross-region replication across SG, US, and EU datacenters with multi-master conflict resolution under GDPR/US compliance; resolved critical cold-start bug where active group chats flooded single-chain fetches, guaranteeing reliable sub-100ms multi-chat inbox recovery.
- Overseas Location Platform & API Gateway Infrastructure
  - Spark ETL Pipeline Governance: Sole engineer in Singapore governing the overseas IP geo-location stack (∼100 offline Spark jobs); eliminated queue racing from 12am/2am batch overlap via pipeline rescheduling and CPU/memory tuning; overhauled alert aggregation to eliminate oncall fatigue.
  - High-Throughput Go Profiling: Optimized memory footprint and p99 latency for high-volume Go microservices using pprof (capacity pre-allocation, struct alignment, GC tuning), significantly boosting ASEAN geo-accuracy; earned

team **Spot Bonus** and top annual rating (**Top E**).

- **API Gateway (AGW) Tooling**: Developed automated self-diagnosis and capacity estimation tools for the core PaaS API gateway routing millions of QPS during peak traffic campaigns; promoted within 1 year.

PRODUCT VENTURES & INDEPENDENT BUILDS

INDEPENDENT PRODUCTS | Creator & Full-Stack Builder — SG | Aug 2024 – Present

- **CanCan** (cancan.pages.dev): Financial evidence ledger and automated reconciliation platform for independent businesses, enforcing double-entry bookkeeping principles and local-first architecture; alongside **CafeMood** (specialty cafe discovery) and **Our Village** (neighborhood community platform).

U-WAVE (CAMPUS LIFESTYLE PLATFORM) | Co-Founder — SG | Aug 2019 – Jan 2021

- Co-founded campus lifestyle mobile platform from scratch, scaling to 20,000 registered students and 4,000 DAU; engineered cross-platform mobile client with Flutter and architected backend microservices with Spring Cloud, Docker, and Redis.

SKILLS

Programming Languages: Golang, Java, TypeScript, JavaScript, Python, SQL, Shell
Distributed Systems: High-Concurrency Architecture, Microservices, Kafka, Redis
Cloud & Infrastructure: Docker, Vector, ElasticSearch, CI/CD Pipelines
Domain Expertise: Financial Core Payments & Defect Remediation, IM Protocols & Presence Engines, AI Evaluation Pipeline