Kenneth Gao | hello@kenf.dev | www.kenf.dev **Location:** Singapore
linkedin.com/in/thisiskenf | github.com/duckyfuz | +65 8884-4154

EDUCATION

National University of Singapore Expected Grad: Dec 2026
B.Eng Computer Engineering (E-Scholars Programme), IEEE-Eta Kappa Nu (HKN) | 4.96/5.0 GPA
Relevant Coursework: CS5250 Advanced Operating Systems, CS3211 Concurrent Programming

EXPERIENCE

Software Engineering Intern @ *Open Government Products* Sep 2025 - Feb 2026

- Architected a unified ECS job runner for background tasks, improving system reliability and decoupling operations
- Enhanced job observability via Datadog APM and structured state tracking for traceability and idempotent retries
- Designed a fault-tolerant archival pipeline for offloading bloated tables using AWS EventBridge, resulting in a 40% increase in query speed by mitigating database contentions and deadlocks
- Engineered a low-memory report aggregation service by streaming data between S3 buckets, enabling efficient large-scale data exports and reducing download latency from over 300s to under 2s
- Integrated new ACL framework to decouple authorization from validation, resolving critical VAPT security findings
- Optimized middleware to eliminate redundant database queries, resulting in latency improvements of up to 20%
- Introduced LocalStack for infrastructure mocking to replace flaky stubs with deterministic, reproducible test suites

Founding Software Engineer @ *Pallo (formerly Check, Iterative W25)* Feb 2025 - May 2025

- Engineered and shipped 5+ novel features, driving a 40% surge in 30-day user retention and engagement
- Optimized daily pg_cron batch jobs to process 10,000+ student session results, reducing ingestion lag from 2+ hours to 30+ minutes and enabling near-real-time personalized learning recommendations
- Implemented client-side caching and lazy loading, reducing load times by over 80% to improve user experience

Software Engineering Intern @ *London Stock Exchange Group (LSEG)* Jun 2024 - Dec 2024

- Utilized Infrastructure as Code (IaC) with Terraform to provision micro-services for a data ingestion pipeline, reducing provisioning times by 90% and maintaining idempotency across multiple development and test environments
- Designed and deployed infrastructure using AWS SNS for efficient Pub/Sub data-sharing between micro-services
- Led development of replay feature with Athena for event-driven architecture, accelerating disaster recovery by 80%
- Built CRUD module for hierarchical data access permissions using composite keys in AWS DynamoDB (NoSQL)
- Prototyped WASM SQLite client-side query engine on top of a DynamoDB backend, enabling complex ad-hoc analytics without additional backend endpoints and reducing API call volume by 50%

PROJECTS

LowFat Memory Safety for C/C++ | LLVM instrumentation pass & runtime Jan 2026 - Present

- Recreating LowFat Pointer bounds-checking for LLVM 23, implementing custom LLVM passes in C++ to detect out-of-bounds memory accesses with minimal runtime overhead, based on CC'16 (Duck & Yap)

Proxmox VE Homelab | repurposed laptops running LXCs and VMs Feb 2024 - Present

- Implemented HA for 2-node Proxmox cluster using QDevice for quorum and ZFS replication for data redundancy
- Hardened cluster security by deploying Tailscale as a Zero Trust Network (ZTN) overlay, eliminating public-facing ports and enforcing device-level authentication for all peer-to-peer connections
- Configured a reverse proxy on a DigitalOcean droplet to handle SSL termination, optimizing network performance

(In)secure File Service | simple file sharing service for public use - ifs.kenf.dev Sep 2024 - Present

- Designed a serverless file sharing service using AWS Lambda, CloudFront, and S3, managed with Terraform
- Adopted by 50+ users for sending files to public machines, eliminating the need for logins on untrusted devices

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, Ruby, Java, C, C++
Frameworks: React, React Native, Plasmo, NestJS, FastAPI, Ruby on Rails, Spring Boot
Tooling & Cloud: Docker, AWS, GCP, Datadog, Firebase, Supabase, Terraform, Pulumi
Databases: SQLite, PostgreSQL, DynamoDB, MongoDB, Neo4j (Cypher), Redis, Elasticsearch