

Vinh Tran

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EDUCATION

Purdue University
BS in Computer Science

West Lafayette, IN
Graduation: December 2025

EXPERIENCES

Visiting Scholar | Python, Django, pytest, Git, Apache, Linux, PyMOL
Kihara Lab Purdue University

West Lafayette, Indiana
April 2026 - Present

- Led an incremental, behavior-preserving refactor of a production Django cryo-EM app, shipped as small independently-reviewed PRs
- Added automated tests (pytest) and verified the refactor by re-running old vs. new logic across all 10,219 production job records
- Resolved recurring web-server outages by moving static-file serving off the Python app to Apache, freeing the WSGI worker pool
- Migrated an untracked production service to Git, replacing direct edits on the server with reviewed pull requests
- Ramped up on structural biology with PyMOL, comparing AlphaFold2 vs AlphaFold3 predictions against experimental PDB structures

Software Engineer Intern | TypeScript, PostgreSQL (TimescaleDB), Redis (Elasticache), Docker, SSE
Dong Quang Group Joint Stock Company

Hanoi, Vietnam
June 2025 - August 2025

- Led a team of 5 interns to build price service microservice delivering live stock prices via SSE with sub-100ms latency
- Scaled SSE delivery to 1,000+ concurrent clients using async event loop, supporting 3x user growth without additional infrastructure
- Implemented Redis pub/sub for price updates, reducing delay from 500ms to 80ms enabling traders to react to market changes faster
- Engineered seamless price chart loading by caching candlestick data per symbol and time-frame, cutting latency from 350ms to 65ms
- Optimized PostgreSQL queries by eliminating N+1 fetches and adding composite indexes, reducing page load time (300ms to 165ms)

Software Engineer Intern | Java, Spring Boot, CockroachDB, Redis, Kafka, Elasticsearch, Debezium, Docker, GCP
Euro Vision Development Investment Joint Stock Company

Hanoi, Vietnam
June 2024 - August 2024

- Architected microservices e-commerce backend handling order, payment, and inventory services using Spring Boot and Docker on GCP
- Replaced synchronous REST calls between services with Kafka-based event streaming, cutting order processing from 800ms to 400ms
- Built CDC pipeline with Debezium and Kafka to sync CockroachDB mutations to Elasticsearch, achieving sub-second replication lag
- Introduced Redis caching layer for product catalog and category endpoints, reducing average API response time from 350ms to 85ms
- Containerized all services with Docker cutting setup from 2hrs to 10min and deployed to GCP Cloud Run with rolling updates

Software Engineer Intern | React.js, Web3.js, PostgreSQL (AWS RDS), Redis, Docker, AWS, GraphQL, PromQL
Savvycom - Software Development Company

Hanoi, Vietnam
June 2023 - August 2023

- Developed data pipeline with Web3.js to fetch and process on-chain transactions, powering real-time hedging analytics on DefiLlama
- Designed PostgreSQL schema on AWS RDS to handle user read and write traffic at scale, reducing query latency from 320ms to 175ms
- Created React.js dashboard consuming GraphQL APIs to display real-time queryable analytics with sub-second data refresh from Redis
- Configured Grafana dashboards with PromQL across all services, cutting average incident detection time from 30 minutes to 5 minutes

PROJECTS

CForge | JavaScript, Python, Redis, React.js, Protobuf, gRPC, PostgreSQL

March 2026 - April 2026

- Published open-source runtime configuration library on npm and PyPI, enabling live key-value injection without redeployment
- Established Redis caching layer for configuration storage, reducing injection latency from 45ms to 8ms across all connected clients
- Streamlined client-server communication with gRPC and Protobuf, achieving sub-10ms configuration delivery from server to application
- Integrated Google's Identity Platform API for user authentication and PostgreSQL to keep track of user-project relations

Redis Lite | C++, Go, Docker, AWS EKS, Terraform, GitHub Actions

January 2026 - February 2026

- Engineered Redis server processing 375K+ pipelined SET/GET ops/sec using single-threaded epoll event loop with client buffering
- Ensured data durability with WAIT sync barrier and dedicated IO writer thread, achieving 5x pipelined write throughput improvement
- Enabled high availability with sub-5-second failover by building Go health monitor with automatic role switching and partial resync
- Attained 90%+ test coverage (GoogleTest, Pytest) with CI/CD pipeline automating builds, tests, and K8s deployments

TECHNICAL SKILLS

- **Languages:** Java, Go, C/C++, Python, JavaScript/TypeScript, SQL, Bash, PromQL
- **Infrastructure:** PostgreSQL, CockroachDB, Redis, Kafka, Elasticsearch, Apache, Docker, Kubernetes, Linux, AWS, GCP, GitHub Actions
- **Frameworks & Tools:** Spring Boot, Node.js, NestJS, FastAPI, React.js, Web3.js, Django, PyMOL, GraphQL, gRPC, Protobuf, REST, SSE, Postman, Swagger, Jest, JUnit, Pytest, GoogleTest, Testcontainers, Terraform, Grafana