

## SUMMARY

Senior Backend Engineer with 6 years of experience architecting and building highly available, scalable cloud systems processing millions of daily transactions. A collaborative builder and critical thinker who values simplicity and low-risk solutions. Led architecture design for 10+ technical designs across microservices, Machine Learning systems, and real-time pipelines. Combines an innovative, highly adaptive mindset with deep engineering accountability. Active technical blogger at cuongkane.com.

## EXPERIENCE

- Parcel Perform** Ho Chi Minh City, Vietnam  
Aug 2024 - Present
  - Senior Backend Engineer*
    - **System Architecture & Design:** Authored 6+ technical designs spanning APIs, event-driven pipelines, batch orchestration, async processing, and authentication systems across 15 microservices; reviewed 4+ peer designs.
    - **Microservices & Database Splitting:** Proposed and engineered decomposition of 2 monoliths into microservices with zero-downtime database splitting, enhancing modularity and enabling autonomous team deployments, improving team velocity by 30%.
    - **Large-Scale Database Migrations:** Executed zero-downtime PostgreSQL migrations on tables with billions of records using batch processing strategies, ensuring continuous service availability during schema evolution.
    - **High-Availability Cloud Systems:** Owned and scaled mission-critical analytics platform (ClickHouse/Dagster); accelerated dashboard loading by 30% through static file caching.
    - **Real-Time Data Pipelines:** Designed ML-based carrier identification pipeline processing millions of daily events across 7 microservices, approved by CTO; increased success rate by integrating ML models with legacy regex flows.
    - **AI/ML Solutions:** Pioneered building AI agents using LangChain following ReAct architecture and AWS Bedrock; reduced LLM costs by 20% via strategic model selection while automating Root Cause Analysis workflows.
    - **Developer Productivity Tooling:** Developed 3 custom Claude Code skills adopted company-wide, accelerating TD writing and code reviews by 20-30%; resolved context window limitations and implemented offline documentation caching for team efficiency.
    - **Release & Deployment Strategy:** Implemented advanced release strategies including canary deployment protocols and A/B testing, achieving low-risk delivery through incremental design principles.
    - **Observability & Sustainable Growth:** Enhanced system reliability by defining and monitoring SLA/SLO targets; utilized percentile latencies and Kafka lag metrics to drive proactive capacity planning and ensure consistent service availability.
    - **Mentorship & Knowledge Sharing:** Accelerated team growth by onboarding 5+ engineers and mentoring a developer to promotion-readiness; fostered engineering excellence by delivering 15+ company-wide technical sessions on System Design, AI/LangChain, and best practices.
    - **Engineering Leadership:** Strengthened engineering standards by sharing culture, showcasing clean code principles and software best practices, and conducting 6+ technical interviews.
- Parcel Perform** Ho Chi Minh City, Vietnam  
Jul 2022 - Aug 2024
  - Backend Engineer*
    - **Engineering Excellence:** Delivered features weekly with zero critical bugs by rigorously applying Test-Driven Development (TDD) and effective task prioritization.
    - **Scalable API Development:** Designed and launched Public Booking API for multi-carrier integrations with Celery-based rate limiting to protect third-party resources.
    - **Extensible Integration Architecture:** Designed extensible integration framework supporting 50+ carriers; validated requirements through usage testing to ensure scalability for future logistics partners.
    - **High-Volume Data Pipelines:** Scaled data pipeline to process 5M+ daily events for mission-critical tracking using Apache Flink and optimized microservices.
    - **Email Extraction Platform:** Engineered high-throughput email extraction engine using Kafka CDC; system has processed shipment notifications reliably in production for 3+ years.
    - **Sync-to-Async Reliability Pattern:** Ensured booking reliability by architecting a sync-to-async fallback pattern across 5 microservices using Kafka to handle component failures.

- **Celery Pipeline Architecture:** Accelerated data processing by parallelizing 8K+ postal code tasks using optimized Celery canvas patterns (chain/chord) and worker configurations.
- **System Reliability & Incident Response:** Restored 1.5M records during critical incidents within 24 hours by developing custom recovery scripts and resolving Redis cluster hotspots under 10x traffic load.
- **Large-Scale Data Migrations:** Secured data consistency during large-scale migrations by implementing incremental update patterns, optimizing SQL indexing, and managing autovacuum constraints.
- **Testing & Developer Experience:** Defined and spread company-wide testing standards (AAA pattern) and drove adoption of modern tooling (Poetry, Ruff).

### • Cinnamon AI Labs

Ho Chi Minh City, Vietnam

Aug 2020 - Jul 2022

#### • Software Engineer

- **Enterprise Client Delivery:** Deployed AI-powered document processing systems for Japanese enterprise clients including Deloitte, Bridgestone, Daikin, and Sumitomo, ensuring strict SLA compliance and driving client success in AI automation.
- **Multi-Framework Backend Development:** Delivered 30+ production APIs using Flask, FastAPI, and Django, strictly adhering to SOLID principles and Repository patterns.
- **Multi-Cloud Infrastructure:** Managed multi-cloud infrastructure (AWS, Azure, GCP) and containerized applications with Docker to ensure consistent cross-cloud deployments.
- **ML-to-Production Pipeline:** Bridged gap between research and production by converting experimental ML models into scalable, SLA-compliant API services.
- **Asynchronous Model Execution:** Implemented Celery-based background processing to execute ML models asynchronously and persist results to the database, ensuring high system responsiveness.

## PROJECTS

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- **Codlis - AI Code Visualization (Master's Thesis, H2 2025) ([codlis.com](http://codlis.com)):** Architected multi-agent LLM system for interactive code comprehension using LangChain and Knowledge Graphs. Validated effectiveness via user study showing 2.9x higher task success rate and 29% cognitive load reduction. Architected multi-agent systems using LangGraph for complex orchestration workflows, extending beyond single-agent patterns to enable collaborative AI reasoning.
- **SweatCharge - Sports Club Management (H1 2025) ([sweatcharge.com](http://sweatcharge.com)):** Developed full-stack sports management platform with role-based SSO and automated billing; currently servicing active production users. Implemented fuzzy matching algorithms for player association.
- **Hasiti - AI Hairstyle Simulator (Bachelor's Thesis, 2021):** Built real-time hairstyle simulation app using fine-tuned CNNs for style transfer. Architected full-stack solution connecting React Native mobile client with Python/Flask AI inference backend.

## CERTIFICATIONS

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- **AWS Certified Solutions Architect - Associate:** Amazon Web Services (Valid: Jan 2025 – Jan 2028)

## EDUCATION

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### ● Master of Science in Computer Science

Sept. 2021 – Sept. 2025

Ho Chi Minh City, Vietnam

*HCM University of Science*

- **Research Focus:** AI/ML, Big Data, and Human-Computer Interaction under post-doctoral supervision. Applied analytical experimentation methods for metric-driven evaluation.

### ● Honor Program - Bachelor of Science in Information Technology

Sept. 2017 – Sept. 2021

Ho Chi Minh City, Vietnam

*HCM University of Science*

- **Honor Program:** Top 70 students selected from 1,000+ candidates. Comprehensive curriculum spanning web/mobile development, computer vision, image processing, software engineering, and scientific research methods.
- **Technical Foundation:** Developed fundamentals in algorithms, data structures, OOP principles, and hardware/software architecture through rigorous coursework.

### ● Machine Learning Course (Facebook-sponsored)

Aug. 2019 – Dec. 2019

Ho Chi Minh City, Vietnam

*Coder School*

## AWARDS & RECOGNITION

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- **Parcel Perform (2022-Present)**: Member of the Month (3x), Best Presentation Award, AVA AI Award for AI adoption, Professional Style Award.
- **Cinnamon AI Labs (2020-2022)**: Employee Recognition Award (Monthly) for outstanding technical contributions.
- **Faculty of IT Academic Excellence (2018)**: Top 10 students with highest GPA (9.08/10) among 1,000+ students.

## TECHNICAL SKILLS

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- **Languages**: Python (expert), TypeScript/JavaScript, Scala, Java, SQL
- **Frameworks**: Django, FastAPI, LangChain/LangGraph, Next.js/React
- **Libraries**: Pydantic, Django-Ninja, DRF
- **Distributed Systems**: Microservices, Event-Driven (Kafka, RabbitMQ), High-Availability, Outbox Pattern, Idempotency
- **Data Pipelines**: Apache Flink, Dagster, Celery
- **Databases**: PostgreSQL, Redis, ClickHouse
- **Infrastructure**: AWS, Docker, CI/CD, Observability (Grafana, Sentry, Loki)
- **Software Development Concepts**: TDD, Agile, Technical Planning, Legacy Code Refactoring
- **AI**: Prompting techniques, Human in the loop, Claude Code, OpenCode

## LANGUAGES

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- **English**: B2 Upper Intermediate – Aptis ESOL (British Council) 176/200
- **Vietnamese**: Native