



# Ho Hai Nghia

## Technical Architect

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## EDUCATION

Da Nang University of Science and Technology

## SKILLS

### Programming language

Python  
 PHP  
 Javascript  
 Terraform  
 SQL  
 Rust

### Backend Framework

Laravel  
 Flask  
 AWS Chalice  
 Gin-Gonic  
 Tokio Axum

### AI & Methodologies

Generative AI (GPT, Gemini)  
 Multi-Agent Systems (MAS)  
 Spec-Driven Development

## PROFESSIONAL SUMMARY

- A Technical Architect/Leader with 8+ years of experience, specializing in leading the design, optimization, and scaling of complex, high-load distributed systems.
- Pioneered AI-augmented workflows in pre-sales and bidding phases. Utilized Multi-Agent Systems (MAS) and Generative AI (GPT, Gemini) to rapidly transform ambiguous business requirements into structured, spec-driven development backlogs, accelerating delivery and optimizing project costs.
- Deep expertise in architecting event-driven and data-intensive systems, applying Microservices, Domain-Driven Design (DDD), and Hexagonal Architecture principles.
- Proven hands-on capability in specialized domains:
  - Data Engineering & CDP: Architected CDP platforms, ETL pipelines (Python, Polars), with deep expertise in the analysis and processing of Big Data (AWS Redshift, Snowflake, Databricks).
  - Affiliate Marketing: Designed Affiliate Networking (Performance Partnership) systems.
  - Social & Geo-spatial: Designed high-performance social feeds (Hybrid Fan-out/Pull Model) and complex geo-spatial systems (PostGIS).
- Extensive experience in auditing, refactoring, and optimizing MVP systems (e.g., synchronous to asynchronous, DB query/caching) for scalability.

## TECHNICAL SKILLS

- **Programming Languages:** Python, PHP, Nodejs, Rust
- **Backend & Frameworks:** NestJS, NextJS, Laravel, Flask, Django, Tokio Axum
- **Database & Data:** PostgreSQL, AWS Redshift, MySQL, Redis, Polars, Pandas
- **Infrastructure & DevOps:** Terraform (IaC), AWS (ECS, S3, RDS, ALB, CloudFront, WAF), Docker
- **Event-Driven Architecture:** AWS SQS, AWS Lambda, AWS Batch, EventBridge, Kafka, Flink
- **AI & Acceleration:** Generative AI (GPT, Gemini), Multi-Agent Systems (MAS), Spec-Driven Development, GitHub Copilot, Cursor
- **CI/CD:** GitHub Actions, GitLab CI/CD, AWS CodePipeline

# PROFESSIONAL EXPERIENCE

## SupremeTech Co., Ltd. - Technical Leader

October 2024 - Present

Social Travel Network	
Duration	Audit & Proposal: 3/2025 - 5/2025, Project Technical Leader: 6/2025 - Present
Team size	6 members (Audit & Proposal), 16 members (Implementation)
Position	Project Technical Leader
Description	<p>Architected the technical evolution of a Social Travel Network, a key digital asset for a major Japanese travel corporation. My role was to scale the existing MVP by optimizing critical performance bottlenecks (e.g., image loading, async processing). I also led the architecture for Phase 3, designing complex new social features including the "Discover" engine, a "Timeline" feed, user segmentation for "Campaigns", and "Sharing Groups".</p>
Responsibilities	<ul style="list-style-type: none"><li><b>Technical Leadership:</b> Led cross-functional leads (BA, Dev, Mobile, QC) to analyze, propose, and architect technical solutions for Phase 3, balancing client budget and team resources.</li><li><b>System Audit &amp; Optimization:</b> Audited the existing MVP to identify and resolve critical performance bottlenecks, creating the optimization roadmap for Phase 3.</li><li><b>Async Architecture (Backend):</b> Re-architected the AWS Rekognition content moderation flow from a synchronous (blocking) process to an asynchronous, event-driven model using SQS, eliminating upload timeouts.</li><li><b>Caching &amp; DB Optimization:</b> Solved Home screen latency by designing a multi-layer Redis caching strategy (ID lists &amp; objects) and optimizing complex SQL queries/indexes.</li><li><b>Mobile Performance (Flutter):</b> Drove the solution for mobile app crashes by implementing lazy loading and low-quality image previews in the Flutter media library.</li><li><b>Geo-spatial Architecture:</b> Researched and implemented the PostGIS solution to power all geo-spatial features, including location search, distance calculation, and "nearby" queries.</li><li><b>Data Model Refactoring:</b> Re-architected the core data model from a single entity (Photo) to a Polymorphic (Media) design, enabling future support for Video and other media types, and planned the data migration strategy.</li><li><b>Timeline Architecture:</b> Designed the "Discover" feed's core logic, including the scoring algorithm and the Hybrid Fan-out/Pull Model to solve the "Celebrity Problem".</li><li><b>New Feature Design:</b> Directly architected new business-critical features, including Memories (Story-like) and user segmentation for Admin Campaigns.</li><li><b>AI-Driven Strategy:</b> Pioneered an AI-augmented workflow (MAS, Generative AI) during the 'Audit &amp; Proposal' phase to rapidly distill client requirements into a structured, spec-driven development plan, securing the Phase 3 contract.</li></ul>
Techniques	<ul style="list-style-type: none"><li><b>Application &amp; API:</b> NestJS, TypeScript, Next.js, Prisma</li><li><b>Data Pipeline:</b> Python, Polars, Pyarrow</li><li><b>Mobile (Client):</b> Flutter</li><li><b>Databases &amp; Caching:</b> PostgreSQL, PostGIS, Redis</li><li><b>Infrastructure &amp; DevOps:</b> Terraform (IaC), AWS (ECS, Rekognition, Cognito, S3, Lambda, SQS...)</li><li><b>Integrations:</b> Firebase, Google Analytics, Google Place</li></ul>

## E-commerce & Data Platform

Duration      October 2024 - September 2025

E-commerce & Data Platform	
Team size	17 members (Implementation phase, Oct '24 - Mar '25), reduced to 4 members (Maintenance phase)
Position	Project Technical Leader
Description	Architected the digital ecosystem for a 1000-store Japanese bento chain. Designed a unified platform integrating a mobile e-commerce app (ordering, loyalty) with a central Customer Data Platform (CDP). This architecture processes multi-channel data (In-Store POS, Mobile) to automatically power the core Point/Rank loyalty engine
Responsibilities	<ul style="list-style-type: none"> <li><b>Technical Leadership:</b> Led cross-functional DevLeads (PM, BA, BE, FE, Mobile, QC) to define optimal technical solutions, balancing business goals, team effort, and release timelines.</li> <li><b>Architecture &amp; Delivery:</b> Owned the end-to-end technical lifecycle, from pioneering initial system architecture to ensuring high-quality delivery and final deployment planning.</li> <li><b>System Design &amp; Optimization:</b> Designed core API and service architecture; responsible for identifying system anomalies and proposing optimization solutions.</li> <li><b>CDP Architecture:</b> Architected the end-to-end Customer Data Platform (CDP) for multi-channel data ingestion (POS, Mobile) via Braze SDKs.</li> <li><b>ETL &amp; DWH:</b> Designed and oversaw the big data pipeline (Python, Polars) for processing (CSV, Parquet, Avro) from an S3 data lake into the AWS Redshift DWH.</li> <li><b>Data Modeling:</b> Developed the business logic on Redshift to create Unified Customer Profiles, powering the automated Point/Rank loyalty engine.</li> <li><b>Infrastructure Architecture:</b> Designed the AWS infrastructure and collaborated with the DevOps team to implement IaC (Terraform), ensuring high availability and cost optimization.</li> </ul>
Techniques	<ul style="list-style-type: none"> <li><b>Application &amp; API:</b> Laravel 11, RDS MySQL</li> <li><b>Data Pipeline:</b> Python, Polars, Pyarrow</li> <li><b>Mobile (Client):</b> Flutter</li> <li><b>Databases &amp; Caching:</b> Redshift (DWH), PostgreSQL (Jobs/Redash), MySQL (App), Redis (Cache)</li> <li><b>Infrastructure &amp; DevOps:</b> Terraform (IaC), AWS (ECS, ALB, S3, Lambda, SQS...)</li> <li><b>Integrations:</b> Braze (S3 Currents, SDK tracking), E-Menu, Firebase</li> </ul>

## Interate Corp - Senior Backend Engineer

March 2023 - October 2024

Affiliate Networking Platform	
Duration	March 2023 - October 2024
Team size	30 members
Position	TeamLead Backend Engineer
Description	Affiliate networking platform, serving as a bridge between Brands and Partners. This platform allows Brands to post offers and find potential partners, while Partners can accept offers and run campaigns on their own traffic sources. Permate supports both sides in tracking campaign performance, utilizing AI analytics technologies to optimize campaigns and contracts
Responsibilities	<ul style="list-style-type: none"> <li>Designed system architecture and base source code.</li> <li>Analyzed business requirements to define domains, microservices, and database schema.</li> <li>Developed and maintained APIs for frontend integration.</li> <li>Optimize big data query speed on the system's Report and Dashboard pages</li> <li>Write unit and integration tests for backend.</li> </ul>
Techniques	<ul style="list-style-type: none"> <li>Python, Typescript, Go</li> <li>Flask, Django, AWS Chalice, Nuxt.js, Gin-Gonic</li> <li>Serverless, Microservices, Domain-driven Design, Hexagonal Architecture, Event driven architecture</li> <li>AWS Services: API Gateway, EC2, ECS, S3, SQS, RDS, OpenSearch, ElastiCache, Redshift, Lambda, Kinesis, WAF &amp; Shield, CloudFront, CodePipeline, CloudWatch, Load Balancer</li> <li>Firebase Services: Firebase Cloud Messaging</li> <li>Filter out bots and fraud: Anura</li> <li>Cloud data warehouses: Databricks, Snowflake, Redshift</li> </ul>
Qnavi	
Duration	March 2024 - August 2024
Team size	5 members
Position	TeamLead Backend Engineer
Description	Q-Navi streamlines store maintenance operations by efficiently connecting stores facing issues with the right service providers. The app facilitates centralized management of multiple stores, real-time work progress tracking, and seamless payment processing, ultimately saving valuable time and resources.
Responsibilities	<ul style="list-style-type: none"> <li>Designed system architecture and base source code.</li> <li>Developed and maintained APIs for frontend integration.</li> </ul>
Techniques	<ul style="list-style-type: none"> <li>PHP, Typescript</li> <li>Laravel, ReactJS</li> <li>AWS Services: API Gateway, EC2, S3, RDS, CodePipeline, CloudWatch</li> <li>Firebase Services: Firebase Cloud Messaging</li> </ul>

## Nitro Tech Asia INC - Backend Engineer

August 2021 - March 2023

### Experience Smart Travel & Shopping

Duration	August 2021 - April 2022
Team size	14 members
Position	Senior Backend Engineer
Description	The Symons mobile app is a comprehensive solution that integrates various features such as a loyalty point system, QR code payments, multilingual translation, and travel guides. It aims to foster interaction between local businesses and users, while also supporting the development of tourism and the local economy.
Responsibilities	<ul style="list-style-type: none"><li>API Development: Received and analyzed client requirements, then designed and developed APIs to meet those needs.</li><li>Onboarding and Mentorship: Guided new team members in understanding the project's architectural patterns and processes.</li><li>Code Review: Conducted thorough code reviews of pull requests submitted by other team members.</li><li>Deployment: Deployed the backend application to EC2 instances in both development and staging environments.</li></ul>
Techniques	<ul style="list-style-type: none"><li>PHP, JavaScript, Swift, Kotlin</li><li>Laravel, Vue.js</li><li>Model-View-Controller, Repository Design Pattern</li><li>EC2, S3, RDS, WAF &amp; Shield, CloudFront, CloudWatch</li><li>Firebase Services: Firebase Cloud Messaging</li></ul>

### Internal HR Management Solution

Duration	February 2022 - September 2022
Team size	10 members
Position	Backend Engineer
Description	Streamlines core HR functions, including employee data management, time tracking, leave requests, and company event coordination, enhancing organizational efficiency and employee engagement
Responsibilities	<ul style="list-style-type: none"><li>Collaborated with Business Analysts and Technical Leads to gain a deep understanding of business requirements.</li><li>Participated in the design of relational database schemas.</li><li>Developed base source code and implemented APIs in alignment with business logic.</li></ul>
Techniques	<ul style="list-style-type: none"><li>PHP, JavaScript, Swift, Kotlin</li><li>Laravel, Vue.js</li><li>Model-View-Controller, Repository Design Pattern</li><li>EC2, S3, RDS, WAF &amp; Shield, CloudFront, CloudWatch</li><li>Firebase Services: Firebase Cloud Messaging</li></ul>

### Maruoka - Framing & Woodworking Excellence

Duration	August 2022 - October 2022
Team size	3 members
Position	Team Lead
Description	Maruoka, a renowned provider of premium framing and woodworking products, entrusted me with developing a WordPress plugin to enhance their customer ordering

## Maruoka - Framing & Woodworking Excellence

experience. The plugin enables dynamic pricing and lead time calculations based on custom specifications, streamlining the ordering process and improving customer satisfaction.

Responsibilities	<ul style="list-style-type: none"><li>• Project Lead: Assumed primary responsibility for the project, collaborating closely with the BRSE (Business Requirement Solution Engineer) to thoroughly understand client requirements.</li><li>• Development and Mentorship: Established the base source code and provided guidance to team members in developing the plugin.</li><li>• Deployment: Successfully deployed the product to both development and production environments for the client.</li><li>• Maintenance and Support: Conducted ongoing monitoring and maintenance of the product to ensure optimal performance and client satisfaction.</li></ul>
Techniques	<ul style="list-style-type: none"><li>• PHP, JavaScript</li><li>• WordPress, Jquery</li><li>• EC2, VPS</li></ul>