

Tran Minh Hieu

AI Backend Engineer

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PROFESSIONAL SUMMARY

AI Backend Engineer with hands-on experience in building scalable backend architectures, multi-tenant SaaS platforms, and end-to-end AI applications. Proficient in designing advanced RAG pipelines and high-throughput asynchronous processing systems. Computer Science background with strong expertise in API security, data pipeline automation, and Web3 cross-chain integrations. Driven to deploy production-ready AI solutions that solve real-world business challenges.

EDUCATION & CERTIFICATIONS

Engineer in Computer Science - Can Tho University - GPA: 3.64/4.00	2022 - 2026
VSTEP B1 English Certificate - Can Tho University	2023

SKILLS

Technical Skills	- Programming Languages: Python, Java, TypeScript, JavaScript. - Framework: Next.js, React, Node.js, NestJS, Django, Spring Boot 3. - Database & Caching: PostgreSQL, MySQL, MongoDB, Redis. - Cloud & Tools: Supabase, Docker, Git/GitHub/GitLab, AWS (EC2), BullMQ. - AI Integration: RAG Pipelines, LangChain, Hugging Face.
Soft Skills	Logical thinking & problem-solving, proactive technology research, teamwork, rapid adaptation to high-pressure environments.

WORK EXPERIENCE

TITOPS VIETNAM CO., LTD.	01/2026 - Present
Project: Vielora - AI Chatbot SaaS Platform for Websites Role: AI Backend Engineer	
• AI & RAG Pipeline Engineering: Designed and built an end-to-end RAG system utilizing Google Gemini API and pgvector. Implemented hybrid search (full-text + vector embeddings), document chunking, and voice chat processing. • Multi-Tenant Architecture & Security: Engineered a multi-tenant workspace architecture. Designed REST APIs for embeddable website, standalone links, and PWAs, secured via multi-layer protection (CORS, Rate Limiting, FingerprintJS). • Asynchronous Queues & Infrastructure: Built scalable background processing queues using Redis and BullMQ to handle web crawling, document indexing, daily subscription lifecycle cron jobs, and automated email reminders. • Financial Automation: Integrated payOS payment system and EasyInvoice for VAT invoicing.	
Tech: Next.js 14, TypeScript, Supabase, Redis, BullMQ, payOS, EasyInvoice, Docker, Puppeteer, FingerprintJS.	
Live: https://vielora.vn	
TITOPS VIETNAM CO., LTD. (Client: HVA Group)	11/2025 - 12/2026
Project: Slice SocialFi - Web3 Social Network Platform Role: Backend Engineer Intern	
• Cross-Chain Token Bridge: Designed and deployed a cross-chain token bridge utilizing Lock/Mint & Burn/Unlock mechanisms between BNB Smart Chain and LensChain. • Async Transaction Processing: Built a task queue system using Redis to handle transaction flows safely, including Fiat-to-Crypto payment integration via DNPAY, ensuring zero data loss during temporary service disruptions. • DevOps & Containerization: Containerized backend microservices using Docker and deployed staging environments onto AWS EC2 infrastructure.	
Tech: Node.js, Hono, Viem, PostgreSQL, Supabase, Redis, Solidity, AWS EC2, Docker.	

Project: Giftcards - Corporate Gift Solution | Role: Full-stack Developer

- **Payment Integration:** Integrated the DNPAY Merchant gateway into the system, ensuring secure and accurate financial transaction flows.
- **UX Optimization:** Improved the order flow and developed a retry payment feature to reduce order drop-off rates.

Tech: NestJS, MongoDB, Redis, ReactJS

Live: <https://giftcards.vn>

PERSONAL PROJECTS

SybilSignal - Graph-based Sybil Detection (*Graduation Thesis - Score: 9.8/10*)

01/2026 - 4/2026

AI Engineer

- **Explainable AI & Web Dashboard:** Deployed a real-time security dashboard (Next.js, FastAPI, Modal) that verifies Web3 accounts (Lens Protocol), explicitly visualizing GATv2 Attention Weights on local subgraphs to provide transparent evidence for automated decisions.
- **Multilayer Graph Engineering:** Constructed a 4-layer constraint-aware graph from Lens Protocol data.
- **End-to-End Pipeline:** Automated the entire flow from BigQuery data ingestion to unsupervised representation learning (GAE) and clustering, enabling pseudo-label generation for 4-class risk categorization.
- **Decoupled GNN-ML Architecture:** Pioneered a two-stage architecture separating structural learning (GATv2) from classification (Random Forest). Successfully mitigated GNN over-smoothing on dense quarterly graphs, overcoming severe data imbalance.

Tech: Python, PyTorch Geometric, Scikit-learn, HuggingFace, FastAPI, Next.js, Modal, BigQuery.

Demo: <https://sybilsignal.vercel.app>

Xpervia - Learning Management System & AI Chatbot

02/2025 - 12/2025

Full-stack Developer & AI Engineer

- **RAG Chatbot:** Designed and deployed an AI assistant using a Retrieval-Augmented Generation architecture with LangChain; comparing Vanilla RAG and HyDE RAG architectures to improve document retrieval; fine-tuned Qwen2.5-1.5B-Instruct on course-specific data for context-aware Q&A.
- **Embedding-based Recommendation:** Built a hybrid recommendation system combining Collaborative Filtering and Content-based Filtering for personalized course suggestions.
- **Full-stack LMS:** Developed a complete learning management platform (Django + DRF backend, Next.js frontend); implemented a robust RBAC system for Learners, Instructors, and Administrators.

Tech: Django, DRF, PostgreSQL, Supabase, Next.js, LangChain, HuggingFace.

Demo: <https://xpervia.vercel.app>

Identity Service

8/2024 - 9/2024

Backend Engineer

- **Auth RESTful API:** Built a RESTful user identity service with layered architecture, JWT + OAuth2 authentication, and RBAC.
- **Security:** implemented password hashing, refresh token rotation, and token revocation list.

Tech: Spring Boot 3, Java, Spring Security, Spring Data JPA, MySQL

GitHub: <https://github.com/Tmh3101/user-service>