

# Tran Ngoc Tan

## Software Engineer

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### ABOUT ME

A motivated Software Engineer with strong programming skills and hands-on experience in modern development tools. I'm a team player, quick to adapt, and always eager to learn. With a background in Information Security, I'm equipped to build software that is not only functional but also secure — because what's better than a developer? A developer who studied security.

### SKILLS

LANGUAGES	C++, Java, JavaScript, TypeScript, PHP, Python
FRAMEWORK	ReactJS, NextJS, NestJS, ExpressJS, TypeORM, TailwindCSS, Flatsome-Wordpress, Laravel, Angular, Spring Boot, Swagger, VueJS
OTHERS	MySQL, SQL Server, MongoDB, SQLite, NeonDB(PostgresSQL), HTML, CSS, Thymeleaf, Spring Security, JWT, Linux (Ubuntu Server, Kali), VMWare, Postman, Jira, Bitbucket, Git, GitHub Actions, Git Webhooks, Docker, Jenkins

### EDUCATION

Posts & Telecoms Institute of Technology HCM (PTIT HCM) 09/2021 - 12/2025

- Major - Information Security

CGPA: 3.18

### WORK EXPERIENCE

OTG Lab 09/2025 - Present

#### Associate Software Engineer

- Technology use:

- Development: Laravel, VueJS, NestJS, MySQL, NeonDB(PostgresSQL), Swagger, JWT, Figma, OpenAI API Integration, Speechmatics,...
- DevOps/CICD: Bitbucket, Git, GitHub Actions, Git Webhooks, Docker, Jenkins
- Content: Developing web applications, working with the Singaporean operations team in English (mostly via messaging).....

- Projects:

- Educational Website

- Description: A classroom observation application that leverages Generative AI to automate the evaluation of teaching effectiveness. It processes session recordings to generate detailed reports on teacher-student interaction patterns, helping institutions scale their quality assurance efforts.
- Responsibilities: Backend Developer (Architecting an AI-driven audio analysis platform, integrating advanced LLMs and media processing tools within a scalable Laravel ecosystem.)
- Technology use: Laravel, Queue & Jobs, Cron Job, Multimedia & Data Processing, Supabase, MySQL, OpenAI API Integration, Speechmatics API, Swagger, JWT, BitBucket, GitHub,...

- Management System

- Description: A scalable project management dashboard tailored for team collaboration and performance tracking. Initially prototyped with AI, the system was fully re-engineered to support complex business logic, featuring sophisticated role-based access control (RBAC) and real-time data visualization.
- Responsibilities: Full Stack (Leading the complete refactoring of the legacy codebase and migrating the persistence layer from Supabase to NeonDB (Serverless PostgreSQL). Architected a custom, secure authentication microservice using

- Supabase Edge Functions to replace standard auth, enabling granular permission handling and custom user flows.).
- Technology use: React (Vite), TypeScript, Tailwind CSS, Supabase Edge Functions (Deno), NeonDB (PostgreSQL), JWT, Git,...

- **F&B Management System**

- Description: A comprehensive F&B operation platform consisting of four integrated portals (Customer, Store, Driver, Admin) that streamlines the entire workflow from ordering to delivery. The system features real-time order synchronization, automated driver dispatching, and dynamic inventory management across multiple outlets.
- Responsibilities: Back-end Developer (Ensuring scalability and maintainability. Integrated Google Maps API for real-time driver tracking and route optimization. Developed a robust real-time communication layer using Socket.IO for instant chat and live order updates, and implemented Firebase Cloud Messaging (FCM) for reliable cross-platform mobile push notifications.).
- Technology use: NestJS, TypeScript, PostgreSQL, Google Maps API, Socket.IO, Firebase (FCM), Redis, Docker, Swagger...

- **DevOps Automation Projects**

- Project 1 – CI/CD with Jenkins:
- Description: Automated CI/CD pipeline on Ubuntu Server using Jenkins to build, test, deploy Dockerized applications on code push, with rollback and Discord notifications.
- Project 2 – CI/CD with GitHub Actions:
- Description: GitHub Actions workflow to build Docker images from new code, push to Docker Hub, and automatically deploy containers on servers.
- Technology use: Ubuntu Server, Docker, Jenkins, GitHub Actions, Docker Hub, Git, Webhooks, CI/CD Automation, Discord Integration.

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**Stock Screener****03/2026 - 07/2025****Freelance Full Stack Developer**

- Description: A comprehensive stock screening application that leverages Generative AI to automate the evaluation of market trends. It processes real-time market data to generate detailed technical insights and interactive financial charts, helping investors identify potential trading opportunities efficiently.
- Responsibilities: Full Stack Developer (Architecting the entire web ecosystem, integrating Google Gemini for automated sentiment analysis, and building high-performance data pipelines within a seamless Monorepo architecture.)
- Technology use: Next.js, TypeScript, TailwindCSS, Lightweight Charts, NestJS, Prisma ORM, PostgreSQL (Neon), Python, Pandas, Vnstock, Google Gemini API.

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**Roomrise****01/2025 - 04/2025****Freelance Backend Developer**

- Description: A comprehensive Property Management System (PMS) designed to streamline hotel and property operations. It manages the entire lifecycle of bookings, housekeeping, inventory, and revenue reporting. The system features real-time communication, seamless integration with OTAs via Channex, and detailed analytics dashboards to optimize occupancy and financial performance.
- Responsibilities: Back-end Developer (Architecting scalable RESTful APIs using NestJS for complex booking logic and room availability management. Implementing real-time features with Server-Sent Events (SSE) and Firebase Cloud Messaging for instant updates. Optimizing database performance for heavy reporting queries and ensuring secure role-based access control.).
- Technology use: NestJS, MySQL, TypeORM, Redis, Firebase Cloud Messaging (FCM), Server-Sent Events (SSE), Cron Jobs, Swagger, JWT Authentication, Docker, GitHub....

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**TMA Solutions****06/2024 - 09/2024****Front-end intern of social travel app at TMA Solutions**

- Responsibilities: Font-end developer (Angular)
- Technology use: AngularJS, GitLab, Jira, Figma, Swagger,...
- Content: Member of scrum, Dev UI for some pages of 2 modules, fixbug of UI,...

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**Lentor Mansion****01/2024 - 05/2024****Freelance work in WordPress team at Lentor Mansion**

- Link website: <https://lentor.antk.co/>
- Technology used: Flatsome-WordPress, JavaScript, CSS, HTML

# ACADEMIC PROJECTS

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## BUILDING AN EXPLAINABLE AI-ENHANCED SURICATA IDS/IPS FOR DDOS ATTACK DETECTION AND PREVENTION

09/2025 - 12/2025

### Graduation Project

- Link Report: <https://drive.google.com/file/d/1dgYmOZTnv5wNsOObBYe4frJL6KXCNKXp/view?usp=sharing>
- Designed and deployed a high-performance IDS/IPS that combines Suricata with XAI for accurate, transparent, and automated DDoS mitigation.
  - Designed and deployed a hybrid IDS/IPS architecture combining Suricata (signature-based) with XAI (anomaly-based) to ensure accurate, transparent, and automated DDoS mitigation.
  - Deep Learning & Research: Conducted in-depth research on Siamese Neural Networks (SNN) and XGBoost; addressed data imbalance using pair-generation techniques and trained models on CIC-DDoS2019 flows.
  - Automated Pipeline: Engineered an event-driven pipeline: Suricata Alert → Traffic Capture (tcpdump) → Feature Extraction (CICFlowMeter) → AI Inference → Iptables Dynamic Blocking with SHAP-based explanations.
  - Botnet Simulation (Layer 7 DDoS): Orchestrated a Docker-based botnet using macvlan to assign distinct public IPs to containers, simulating a true Distributed Denial-of-Service (DDoS) attack. This environment generated high-concurrency HTTP Floods (L7) from multiple unique sources, challenging the AI model to detect distributed anomalies rather than simple volumetric DoS.
  - DoS Stress Testing (L3/4 Attacks): Rigorously validated system resilience against volumetric packet floods (TCP SYN, UDP Flood) using standard stress-testing tools like hping3 and LOIC.
  - Real-time Monitoring: Integrated Grafana to visualize network traffic, system resources, and attack alerts in real-time.
- Technologies: Python, PyTorch, XGBoost, Siamese Neural Network, SHAP (XAI), Suricata, Docker (macvlan), Grafana, CICFlowMeter, tcpdump, iptables, Bash Scripting, Linux (Ubuntu/Kali).

## ENGLISH DICTIONARY APP

04/2025 - 06/2025

### Mobile Project

- Source code:
  - App: <https://github.com/newtdangcode/english-dictionary>
  - Server: <https://github.com/newtdangcode/english-dictionary-api>
- Number of members: 05 (Group's project at my university)
- Responsibilities: Data Design, Android Mobile and BackEnd
- Technology used:
  - Android Mobile: Java, Android SDK, SQLite
  - Back End: ExpressJS, Mongodb, JWT

## SIUU STORE

09/2024 - 11/2024

### MVC Web Project

- Source code: <https://gitlab.com/siuuuuu/backend>
- Number of members: 05 (Group's project at my university)
- Responsibilities: FrontEnd and BackEnd
- Technology used: Spring Boot, Spring Security, Thymeleaf, MySQL, JWT, TailwindCSS

## COMPUTER ROOM SCHEDULE

04/2024 - 06/2024

### Client-Server Web Project

- Source code: <https://github.com/newtdangcode/Computer-Room-Schedule>
- Number of members: 04 (Group's project at my university)
- Responsibilities: Leader, Data Design, FrontEnd and BackEnd
- Technology used:
  - Font End: ReactJS, TailwindCSS, Axios.
  - Back End: NestJS, TypeORM, MySQL, JWT

## MONAFRESH

03/2023 - 06/2023

### Client-Server Web Project

- Source code: <https://github.com/newtdangcode/MonaFresh>
- Number of members: 04 (Group's project at my university)

- Responsibilities: FrontEnd and BackEnd
- This is a website that helps manage and provide organic foods. Customers can sign in, sign up, view, purchase, add to cart, send feedback, edit profile, update password, filter by conditions, search products by name, manage orders.
- Managers can manage orders, products, and employees.
- Technology used: Mern Stack (Mongodb, Expressjs, Reactjs, Nodejs). Using JWT to authenticate and authorize. SocketIo to create realtime notification when user place an order