HO TAN DAT

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SUMMARY

AI Researcher and PhD candidate at the University of Debrecen on a fully funded Hungarian State scholarship. Building production AI systems from LLM inference and fine-tuning to multi-stage NLP pipelines, computer vision, and time-series forecasting. Bridging academic research with hands-on engineering across microservices architecture and full-stack development.

EDUCATION

PhD in Informatics (Machine Learning / AI) Feb 2026 - Present
University of Debrecen
Fully funded Cooperative Doctoral Scholarship financed by the Hungarian State

Master of Computer Science Dec 2021 - Aug 2024
Duy Tan University
GPA: 3.53/4

Bachelor of Software Engineering (CMU) Oct 2016 - May 2020
Duy Tan University
GPA: 3.67/4

LANGUAGES

TOEIC - 940/990 2023

IELTS Academic - 7.0/9.0 2021

PUBLICATIONS

Grounded-SAM Plus - Multimedia Tools and Applications 2025 (In Submission)
Ho, D. T., Bérczes, T., & Nguyen, M. D. (2025). Grounded-SAM Plus: Enhancing Mask Quality for Image Dataset Augmentation through Diffusion-Based Refinement. *Multimedia Tools and Applications*, Springer. *Status: In Submission*

AI-Enhanced Time-Series Forecasting - IGI Global 2025 (In Submission)
Ho, T. D., Nguyen, M. D., & Bérczes, T. M. (2025). AI-Enhanced Grouped Time-Series Forecasting with Weather and Holiday Effects. *International Journal of Knowledge and Systems Science*, IGI Global. *Status: In Submission*

GymViet - IPMV 2025 Conference 2025 (In Submission)
Pham, D. D., Ho, V. N., Pham, M. T., Pham, M. T. L., Dam, Q. V., Dat T. Ho, & Man D. Nguyen. (2025). GymViet: AI-driven fitness assistance platform. *IPMV 2025 Conference. Status: In Submission*

SkyStudy - CITISIA Journal 2025 (In Submission)
Che, K. Q., Pham, H. T., Tran, B. D., Le, D. H., Thai, V. T., Dat T. Ho, & Nguyen, D. M. (2025). Leveraging YOLO Object Recognition and Deep Learning for Enhanced Interactive English Vocabulary Learning in Children. *CITISIA Journal. Status: In Submission*

Flinx - To be defined 2025 (In Submission)
Dat T. Ho, Anh M. V. Pham, & Berczes, T. M. (2025). Machine Learning for Multi-Horizon Financial Ratio Forecasting. Publisher: To be defined. *Status: In Submission*

AI Chatbot for Tourism - Da Nang Publishing House 2022
Nguyen, T. S., Doan, K. T., Phung, H., Pham, V. T., Ho, T. D., & Nguyen, D. M. (2022). Applying AI Chatbot to Leverage the Quality of Tourism Information Systems Services. Da Nang Publishing House.

DSParking - Da Nang Publishing House 2022
Ho, T. D., Nguyen, H. T., Nguyen, T. B. N., Luong, P. T. D., Duong, L. D. T., & Nguyen, D. M. (2022). Applying OpenCV and QR CODE for Building a Smart Parking Management System-Case Study at Duy Tan University. Da Nang Publishing House.

ODWai - Da Nang Publishing House 2021
Nguyen, B. C., Nguyen, H. H., Pham, M. H., Le, V. T., Ho, T. D., & Nguyen, D. M. (2021). ODWai-Object Detection on The Web Application Interface using Deep Learning-Applying for Web Testing. Da Nang Publishing House.

Uberwasted - Springer Singapore 2020
Nguyen, B. T., Tan, D. H., Dieu, H. V. T., Khac, D. N., & Dinh, H. T. (2020). Uberwasted App for Reporting and Collecting Waste Using Location Based and Deep Learning Technologies. In *International Conference on Future Data and Security Engineering* (pp. 178–188). Springer, Singapore.

CORE COMPETENCIES

Technical Competencies

- **LLM Deployment & Fine-Tuning:** Deployed and managed vLLM inference servers with OpenAI-compatible APIs, streaming completions, and dynamic model management. Fine-tuned large language models (Qwen3-32B) using LoRA adapters for domain-specific tasks.
- **NLP & Text Processing Pipelines:** Built multi-stage NLP pipelines (paraphrasing, perturbation, grammar correction) with concurrent processing. Experienced with prompt engineering, embedding-based RAG solutions combining semantic retrieval with generative AI.
- **Computer Vision & VLM:** Applied vision models for face recognition, vehicle plate recognition, and object detection (YOLO, Grounded-SAM). Built document extraction pipelines using Vision Language Models to parse structured data from PDFs.
- **Time-Series Forecasting:** Developed production forecasting models using Temporal Fusion Transformer and DeepAR for predictive analytics with weather and holiday effect integration across grouped time-series data.
- **Microservices & API Architecture:** Designed and built multi-service platforms with API gateway routing, JWT authentication, per-service key injection, async task queues (Redis/RQ), and unified OpenAPI documentation aggregation.
- **DevOps & Cloud Deployment:** Containerization with Docker, orchestration with Kubernetes, and cloud deployments on GCP. Experienced with Nginx reverse proxy configuration and production service management.
- **Research & Academic Writing:** Published and submitted papers in international conferences and journals (Springer, IGI Global). Skilled in identifying research gaps, synthesizing concepts, and translating findings into practical applications.
- **Full-Stack Development:** End-to-end application development from vanilla JS frontends to Python backends with MongoDB/Redis data layers. Deep understanding of the full software development life cycle.

Soft Skills

- Problem-solving, pitching, presentation, change management, adaptability, coaching leadership, communication.

WORK EXPERIENCE

University of Debrecen Jun 2025 - Present
On-site - Debrecen, Hungary
AI Researcher

- Built a multi-service compute and AI inference platform with microservices architecture (FastAPI, Nginx reverse proxy, Redis, MongoDB), serving as a unified research computing workspace.
- Designed and deployed an LLM inference service powered by vLLM with OpenAI-compatible API, supporting streaming chat completions, embeddings, and dynamic model load/unload management.
- Developed an AI text humanizer with a 3-stage NLP pipeline (paraphrasing, word perturbation, grammar correction) using a LoRA fine-tuned Qwen3-32B model, with parallel chunk processing and async job queue.
- Implemented a document extraction pipeline using Vision Language Models (VLM) to extract structured data from uploaded PDFs via asynchronous task workers.
- Developed time-series forecasting models (Temporal Fusion Transformer, DeepAR) for sales predictive analytics with weather and holiday effect integration.
- Designed a centralized API gateway with JWT authentication, per-service API key injection, and unified OpenAPI documentation aggregation.
- Produced research papers for publication in international conferences and journals.

Brightsource Data Analytics Sep 2024 - Sep 2025
Full-time - Remote, Israel
AI Engineer

- Leveraging AI models (Transformers, BERT) to extract structured data from unstructured sources.
- Labeling and training custom AI models for task-specific resolutions.
- Developing modules that integrate LLM APIs for business requirements.
- Building RESTful APIs with FastAPI for scalable application architectures.
- Implemented embedding-based RAG solution combining semantic retrieval with generative AI.

NDC TECH May 2022 - Sep 2024
Full-time - Da Nang, Viet Nam
AI Engineer

- Collaborated with cross-functional teams to integrate AI models into client systems (e.g. face recognition for attendance check-in and check-out system, vehicle registration plate recognition, etc.)
- Developed RESTful APIs using FastAPI to integrate AI functionalities into web applications.
- Established, evaluated, and validated hypotheses on training datasets ensuring robust model performance and generalization.
- Containerization, Kubernetes (K8s), and Google Cloud Platform (GCP).
- Participated in code reviews to maintain high-quality standards, sharing Python development best practices.

Duy Tan University Jun 2020 - May 2022
Full-time - Da Nang, Viet Nam
Teaching Assistant

- Assisted senior faculty in delivering lessons for Software Project Management, Software Testing, Basic Programming, and related courses.
- Facilitated lab sessions and tutorials, providing hands-on support to students with coding assignments and projects.

Lecturer

- Created and delivered course content aligned with current industry practices.
- Mentored students through academic journey, project work, and thesis development.

Researcher

- Conducted research in Machine Learning focusing on algorithm development and applications.
- Published research findings and presented at conferences.