

NGUYEN VAN TU

AI/ML Intern

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Education

VNUHCM - University of Science

2022 - 2026

Bachelor of Information of Technology — Major: Computer Vision

Ho Chi Minh City

- **GPA:** 3.19 — **IELTS:** 6.0
- **Courseworks:** OOP, DSA, Databases, Mathematics for AI, Probability and Statistics, AI Fundamentals, Machine Learning, Digital Image & Video Processing

Technical Skills

Languages: Python, C++, JavaScript

Libraries/Frameworks: FastAPI, Langchain, Tensorflow, Pytorch, Transformer, Scikit-learn, Pandas, Matplotlib, Milvus

Developer Tools: Azure, Git, Docker, Postman

Projects

Educhain | 5 members | github.com/Tuprott991/Educhain-AI

Jan – Mar 2025

- **Role:** Team lead / AI Engineer
- **Description:** Built a personalized learning platform integrating AI agents for lightRAG-chatbot, study set generation, and knowledge profiling.
- Utilized **FastAPI** for fast and efficient request handling backend. Leveraged **Langchain** to build agents with optimized retrieval and LLM-database interactions.
- Managed all data with **PostgreSQL**, leveraging **pgvector** for vector storage and **Apache AGE** for knowledge graphs, while building the user interface with **ReactJS**.
- Fine-tuned **Qwen2.5-7B** using the **LoRA** method and deployed it with **vLLM** for optimized inference.
- **Techs:** Python, FastAPI, Langchain, PostgreSQL, LoRA, vLLM, lightRAG.

Multimodal Video Retrieval | 5 members | github.com/Tuprott991/AIthena-C

Aug – Oct 2024

- **Role:** Team lead / AI Engineer
- **Description:** Developed a interactive web system to search videos event based on natural language, scene, voice, OCR, and other metadata.
- Reduced search latency by **30%** through optimized keyframe extraction with **OpenCV** & **TransNetV2**, and applied **CLIP ViT L/14**, **BLIP-2** models for embeddings, enabling efficient search with **FAISS**.
- Accelerated search with **multimodal input** (text, voice, prompt, objects), utilized **GPT-4o** API for query enhancement and visual question answering. Applied **Whisper** for robust real-time speech-to-text task.
- **Techs:** Python, Flask, Javascript, HuggingFace, Numpy, Transformer, OpenAI

Vision Language Object Tracking | github.com/Tuprott991/Object-tracking-Natural-Language

Dec 2024

- **Description:** Designed an object tracking pipeline that integrates natural language inputs for enhanced object identification and tracking across video frames. Leveraged vision-language models for understanding scene context and tracking targets based on user queries.
- Improved object tracking precision by 20% with a custom-trained **YOLOv5** model on a Vietnamese vehicle dataset.
- Implemented a hybrid approach combining candidates matching with **CLIP** for semantic query understanding and **DeepSORT** for robust multi-object tracking.
- **Techs:** Python, Ultralytics, YOLO, CLIP, DeepSORT, Googletrans

Honors & Awards

- **Champions** of Web3 & AI Ideathon (2025) (over 450+ teams)
- **Finalist** in AI Challenge HCMC 2024
- **Consolation Prize** in The National Youth Informatics Competition 2022
- **Champions** of Line Follower Robot competition HCMUS (F-RACE) 2024

Publication

Tu Van Nguyen, Nghia Trung Duong, Nhan Thanh Pham, Thanh Xuan Luong, and Dang Duy Bui. An Interactive System For Visual Data Retrieval From Multimodal Input. *The International Symposium on Integrated Uncertainty in Knowledge Modelling and Decision Making (IUKM)*. 2025