Tien-Dat Nguyen

✉ nguyendatdtqn@gmail.com

▢ +84 345746068

in dat-nguyentien204

○ dat-nguyen-tien204

🌐 tien-datnguyen-blogs.me

ABOUT ME

A highly motivated AI practitioner with a profound passion for Generative AI in Computer Vision. My primary professional goal is to contribute to the development and application of cutting-edge generative models to solve complex visual challenges, create novel visual experiences, and push the boundaries of what's possible in AI-driven content generation and understanding.

EXPERIENCE

Oil Dynamic Pricing Prediction - Lead Researcher   **06/2025**
Reinforcement Learning for Time-Series Forecasting

- **Designed** NAE_TransDQN: a hybrid Transformer–DQN model for time-series trading policy learning.
- **Built** a data pipeline with NLP-based sentiment scoring (FinBERT, DistilBERT) from multi-source news.
- **Developed** a full-stack app (React + Flask), deployed via Docker and Triton Inference Server.
- **Achieved** RMSE < 0.35 by benchmarking ML/RL models with advanced feature engineering.

Technologies: PyTorch, Reinforcement Learning, Transformers, React, Flask, Docker, NVIDIA Triton, Scikit-learn

Driver Monitoring System (DMS) - Project Lead   **02/2025**
Real-time AI Safety System

- **Led** end-to-end development of a real-time DMS enhancing driver safety and alertness.
- **Engineered** AI modules (PyTorch/TensorFlow, MediaPipe) for drowsiness detection, gaze tracking, and distraction alerts.
- **Developed** a Streamlit dashboard for real-time feedback and system monitoring.
- **Architected** the data pipeline (camera input to AI inference & alerts), optimizing for low latency.

Technologies: PyTorch, TensorFlow, MediaPipe, Streamlit, Python

End-to-End Image Retrieval for Vietnamese - Self-Project   **01/2025**
Multi-modal AI for Vietnamese Text-to-Image Retrieval

- **Built** a multi-modal CLIP-style model in PyTorch for linking Vietnamese text and images.
- **Unified** and preprocessed multiple vision-language datasets (UIT-ViLC, UIT-EVJVQA).

- **Boosted** retrieval accuracy via encoder experiments (Swin, phoBERT) and FAISS integration.
- **Deployed** a full-stack system with a Flask API, web UI, and Docker containerization.

Technologies: PyTorch, Hugging Face Transformers, FAISS, Timm, Flask, Docker, Python

AI Lung Disease Diagnosis System - Project Lead   10/2024
AI for Medical Imaging Analysis
- **Led** development of an AI system for early lung disease diagnosis from medical imagery (X-rays, CT scans).
- **Developed** U-Net models (PyTorch) for identifying and localizing pathological indicators.
- **Built** a Streamlit web app for image upload, AI prediction visualization, and diagnostic support.

Technologies: PyTorch, U-Net, Streamlit, Python, Medical Imaging

VAL-AutoLabelImg: Automated Labeling Tool - Self-Project   02/2024
Open-Source Tool for Computer Vision & MLOps
- **Integrated** SOTA detectors (YOLOv8–v10, RT-DETR) into LabelImg to automate and speed up labeling.
- **Enabled** support for custom weights and class configs via YAML-based extensibility.
- **Containerized** with Docker and published to Docker Hub for easy reuse and deployment.

Technologies: Python, PyTorch, YOLOv8/v9/v10, RT-DETR, Docker, PyQt, Git LFS

Vietnamese Visual Question Answering (VQA) with BLIP - Self-Project   02/2024
Multi-modal AI for Natural Language Processing
- **Optimized** a Vietnamese BLIP-based VQA model, reducing inference time by 40% while maintaining SOTA accuracy on culturally relevant queries.
- **Adapted** BLIP architecture (vision transformer, text encoder/decoder) to process Vietnamese questions and generate relevant answers for images.

Technologies: PyTorch, Hugging Face Transformers, BLIP, Vision Transformer (ViT), NLP

AI Face Attendance & Anti-Cheating System - Lead Developer   8/2023
AI for Computer Vision & Pattern Recognition
- **Architected and led** development of an AI system for automated face attendance and real-time anti-cheating detection.
- **Engineered** OpenPose-based human pose estimation modules for student posture analysis.
- **Developed** RNN/LSTM models to process temporal pose data for identifying cheating behaviors.

Technologies: OpenPose, RNN, LSTM, PyTorch, TensorFlow, Computer Vision

Deep Learning for News Category Classification - Lead Developer   4/2023
AI for Natural Language Processing
- **Spearheaded** development of a system for automatic Vietnamese news category classification.

- **Implemented** BiGRU and BiLSTM networks from scratch for contextual information capture.
- **Engineered** an end-to-end NLP pipeline: text preprocessing, feature engineering (Word2Vec), model training, and evaluation.

Technologies: BiGRU, BiLSTM, Word2Vec, Python, NLP, Scikit-learn

EDUCATION

B.Sc. in Computer Science   **2022 - Present**
Hung Yen University of Technology and Education, Hung Yen, Vietnam
  - **GPA**: 3.73/4.0
  - **Related coursework**: Computer Vision, Data Structures, Machine Learning, Deep Learning, Probability and Statistics, Software Engineering.
  - Top 20 IT Students in Academic Year (2023-2025)

PUBLICATIONS

Article(s)
- **Dat, N. T.**, Phuc, N. T., & Chuan, P. M. (2023). APPLICATION OF MACHINE LEARNING IN IMAGE RECOGNITION TO DETECT SOME ABNORMALITIES IN THE EXAMINATION ROOMS. *Journal of Applied Science and Technology, 40*, 27-32.
- Le, T. H., Tran, D. T. H., Hoang, Q. V., Nguyen, D. T. A., Nguyen, C. T., **Nguyen, T. Dat.**, ... & Nguyen, T. K. (2024, November). An Efficient Approach for Stink Bug Detection. In *International Conference on Advances in Information and Communication Technology* (pp. 745-752). Cham: Springer Nature Switzerland.

Submission(s)
- **Nguyen, Tien-Dat**. (2025). "NAE TransDQN: A Hybrid Transformer and Deep Reinforcement Learning Approach for Dynamic Oil Price Prediction." *Transportation Research Record*.
- Pham, T-H., Tran, D-T-H., Giang, T-H., Nguyen, T-K., **Nguyen, T-D.**, & Le, T-H. (2025). "A Comparison of Semantic Segmentation Approaches for Pothole Detection." *Submitted to the International Conference on Smart Technology in Industry 4.0 (STAIS 2025)*.
- Luu, T. H. N., Nguyen, T. P., **Nguyen, T. Dat.**, Le, T. N., Nguyen, N. T., Luu, H., ... & Nguyen, T. K. (2024, November). Vietnamese Bra Size Classification with Machine Learning.
- **Nguyen, Tien. Dat.**, Nguyen, Trung. Kien. From YOLOv1 to YOLO11: A Comprehensive reviews of YOLOs model.

SKILLS

Proficient In
- **Languages:** Python
- **Machine Learning / AI Frameworks:** PyTorch, TensorFlow, Scikit-learn, Hugging Face, Numpy
- **Tools & Platforms:** Docker, Git, LaTeX, NVIDIA Triton Inference Server
- **Databases:** MySQL, SQL Server
- **Operating Systems:** Linux, Windows

Familiar With
- **Web Development:** React, Flask, NodeJS, HTML, CSS
- **Languages:** C#
- **Cloud Platforms:** AWS S3

Soft Skills
- Leadership, Team Collaboration, Technical Writing, Research & Analysis, Problem-Solving

CERTIFICATIONS & AWARDS

- **Second Prize**, School-Level Scientific Research Competition (2025) – *Hung Yen University of Technology and Education (UTEHY)* – Mar 2025
- **Paper Accepted**, The International Conference on Information and Communication Technology and Applications (ICTA) 2024 – Dec 2024
- **Second Prize**, School Start-up Award – *Hung Yen University of Technology and Education (UTEHY)* – Nov 2024
- **Second Prize**, School-Level Scientific Research Competition (2024) – *Hung Yen University of Technology and Education (UTEHY)* – Apr 2024
- **Paper Accepted**, UTEHY Journal of Applied Science and Technology – Dec 2023
- **Start-up Incentive Award** – *Hung Yen University of Technology and Education (UTEHY)* – Oct 2023