Duc Minh Nguyen

Data Scientist / Research Enginner

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RESEARCH INTERESTS

General domains:	Data Science, Generative AI, Multimodal Learning, Biomedical, Large Language Models.
Generative models:	Latent Diffusion, Variational Auto-Encoder, Autoregressive Models, Unsupervised Learning.
Computer vision:	Detection, Segmentation, Point Clouds, Anomaly Detection.
Multivariate Time-series	Analysis for downstream tasks.

EDUCATION

Master of Science, AI Convergence, Computer Science
Chonnam National University, GPA: 4.36/4.50   Mar 2025
Bachelor of Science, Computer Science
Vietnam National University - University of Engineer and Technology, GPA: 3.05/4.00   Sep 2021
Thesis: Artificial Intelligent System for Identifying Airport Passengers. (Score: 9.2/10)

EXPERIENCE

Research Graduate Student   **Mar 2023 — Mar 2025**
Smart Computing Lab   *Chonnam National University, Dept. of AI Convergence, South Korea*

- Multiple Facial Reaction Generation in Dyadic Communication/Multimodal Recognition/Medical Image Analysis
- *Children Emotion Recognition*, Internship at SafeMotion Corp.
  Developed a Facial emotion recognition system from children's videos with fast and multi-scale capabilities.
- *Nursing Simulation*, Internship at JLG Inc.
  Enhancing Healthcare Education: Leveraging ChatGPT for Innovative Simulation Scenarios. Design a full web application that lets users generate detailed patients' medical reports from the chosen specific disease. A chat box appears for the learners to discuss. Allow to modify and regenerate results with the changes.

Researcher Assistant   **July 2021 — Jan 2023**
Human Machine Interaction Lab   *VNU University of Engineering and Technology, Dept. Information Technology, Vietnam*

- *Woodblock reconstrcution.* A government project to reconstruct lost cultural heritage by applying AI technology.
- Proposed processing algorithm for registering the Woodblock character in 2D images and 3D point cloud - mesh data based on SSIM for creating symmetric character datasets. Domestic paper: "Alignment of 3D woodblock geometrical models and 2D orthographic projection image."[Link]
- Point cloud reconstruction for woodblock characters (refine and upsample 3D point cloud).

AI Engineer   **Apr 2022 — Oct 2022**
AI Center   *FPT Software, Vietnam*

- Perform 3D project of Point cloud inspection, detecting errors on a specific product and estimating depth in 3D by using a 2.5D depth camera.
- The defect spots are detected by a 3D point cloud semantic segmentation model. Our model - Gpoint is enhanced from Point-Tranformer (ICCV 2021).

AI Engineer   **Aug 2020 — Jul 2021**
Hyperlogy Corp.   *Vietnam*

- *Banking Chatbot.* An auto-serving chatbot can answer questions and provide enterprise information for customers' requirements. The chatbot can deal with many scenarios when interacting with customers, and perform some common services related to customers' bank accounts by developing custom APIs.
- *Passport/ID card Extraction.* Document Image Alignment, OCR, and text processing. The system further can verify face profile photos with document photos, real-time face tracking, and match and compare the customer's face to his/her face in the profile photo using MTCNN, ArcFace Model, and Euclidean Distance.
- *Face Check-in on Raspberry Pi.* Set up and built a module for Pi zero and Pi 3 for real-time face recognition with decent accuracy. A fully functional embedded program on portable Pi including touchscreen GUI. Users also can use fingerprints just in case.

Web Developer   **2019**
Revotech Lab   *VNU University of Engineering and Technology, Vietnam*

- *Petrophysic Web Data Visualizer.* Building data visualizer from scratch by PixiJS engine.

Publications

Latent Behavior Diffusion for Sequential Reaction Generation in Dyadic Setting[Link]   **Dec 2024**
27th International Conference on Pattern Recognition (ICPR2024)

Vector Quantized Diffusion Models for Multiple Appropriate Reaction Generation[Link]   **May 2024**
18th IEEE International Conference on Automatic Face and Gesture Recognition (FG2024)

Dual-Stream Transformer Approach for Pain Assessment via Visual-Physiological Data Modeling[Link]   **Under-review**
Biocybernetics and Biomedical Engineering

Anatomical Attention Alignment representation for Radiology report generation [Link]   **Under-review**
IEEE International Conference on Image Processing (ICIP 2025)

Korea & International Joint Conferences:

Transformer with Leveraged Masked Autoencoder for video-based Pain Assessment[Link]   **Aug 2024**
12th International Conference on Big Data Application and Service (BIGDAS2024)

Leveraging WaveNet for Dynamic Listening Head Modeling from Speech[Link]   **Jul 2024**
20th International Conference on Multimedia Information Technology and Applications (MITA24)

Document-based Llama-2 powered Chatbot for Medical Diagnosis and Treatment   **Mar 2024**
Korea Smart Media Society Spring Conference (KSIM2024)

Multiple listener facial generation in face-to-face communication via Variational Autoencoder   **Dec 2023**
Korea Conference on Software Engineering 2024 (KCSE2024)

Awards and scholarships

Chonnam National University Scholarship   **2023 — 2024**
For excellent academic record in every semester.

Best Paper Award in Big Data in Safety and Healthcare   **Aug 2024**
12th International Conference on Big Data Application and Service (BIGDAS2024)

Outstanding Short Paper Award   **Dec 2023**
Korea Conference on Software Engineering 2024 (KCSE2024)

Gold Prize (Regional) in Generative AI - Hackathon by CNU Innovation Talent Development Center   **Nov 2023**
We employed a fully functional chatbot capable of generating a Cartoon Talking Face that accompanies the text-based responses. Our web-based GPTchatbot is oriented toward language study for children. The interactive element enhances engagement and makes the learning experience more enjoyable.

Third Prize (Regional) in Informatics, - Vietnam National Olympiad   **2015**
Joined Vietnam National Olympiad in Informatics, won 3rd prize in 2015 regional merit competition.

Skills

Tools and Languages	Python, C/C++, Java Git, R, Matlab, Bash script, HTML/CSS
Libraries	Pytorch, HuggingFace, Cuda, Numpy, SKlearn, OpenCV, Open3D, Langchain, Matplotlib
Technologies	Linux, Docker, Anaconda, Raspberry Pi, Jetson Nano, VR
Quantitative Research	Mathematical optimization, Mathematical Modeling, MySQL
Offices	MS Word, Excel, PowerPoint, LaTeX, Canva
Scientific Illustration	Adobe, Clip Paint Studio, Draw.io, Procreate
Communication	English (B2)

References

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