Minh Duc Nguyen

Data Scientist / Research Enginner

(+84) 0946652392
Hanoi, Vietnam
minhducddd@gmail.com

scholar
github.com/mducducd
linkedin.com/in/mducducd

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

Computer Scientist — **Aug 2025 — Present**
EKFZ - Else Kröner Fresenius Center for Digital Health — *Technische Universität Dresden, Germany*
- Medical Informatics

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 reconstruction.* 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

MD Nguyen, HJ Yang, SH Kim, S Kim, JE Shin, **"Latent Behavior Diffusion for Sequential Reaction Generation in Dyadic Setting,"** *Proc. 27th Int. Conf. on Pattern Recognition (ICPR)*, Kolkata, India, Dec. 2024. *(top 10%)*[Link]

MD Nguyen, HJ Yang, NH Ho, SH Kim, S Kim, JE Shin, **"Vector Quantized Diffusion Models for Multiple Appropriate Reaction Generation,"** *Proc. 18th IEEE Int. Conf. on Automatic Face and Gesture Recognition (FG)*, Istanbul, Turkey, May 2024. [Link]

MD Nguyen, HJ Yang, SH Kim, S Kim, JE Shin, **"Dual-Stream Transformer Approach for Pain Assessment via Visual–Physiological Data Modeling,"** *PeerJ Computer Science*, 2025. [Link]

QV Nguyen[*], **MD Nguyen**[*], THS Vo, HJ Yang, SH Kim, **"Anatomical Attention Alignment Representation for Radiology Report Generation,"** *Proc. IEEE Int. Conf. on Image Processing (ICIP)*, Alaska, USA, Sep. 2025. [Link]

THS Vo, QV Nguyen, **MD Nguyen**, SH Kim, **"Image Sequentialization via Mamba-based Encoder for Contrastive Radiology Report Generation,"** *The British Machine Vision Conference (BMVC)*, under review, 2025.

Korea & International Joint Conferences

MD Nguyen, HJ Yang, SH Kim, S Kim, JE Shin, **"Transformer with Leveraged Masked Autoencoder for Video-based Pain Assessment,"** *Proc. 12th Int. Conf. on Big Data Application and Service (BIGDAS)*, Jeju, South Korea, Aug. 2024. /textit(top 10%[Link]

MD Nguyen, HJ Yang, SH Kim, S Kim, JE Shin, **"Leveraging WaveNet for Dynamic Listening Head Modeling from Speech,"** *Proc. 20th Int. Conf. on Multimedia Information Technology and Applications (MITA)*, Taipei, Taiwan, Jul. 2024. [Link]

MD Nguyen, HJ Yang, **"Document-based Llama-2 Powered Chatbot for Medical Diagnosis and Treatment,"** *Korea Smart Media Society Spring Conf. (KSIM)*, Gwangju, South Korea, Mar. 2024.

MD Nguyen, DK Nguyen, HJ Yang, **"Multiple Listener Facial Generation in Face-to-Face Communication via Variational Autoencoder,"** *Korea Conf. on Software Engineering (KCSE)*, Seoul, South Korea, Dec. 2023.

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, 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 (IELTS 6.5 - Cert B2), Korean (School lvl 1)

REFERENCES

Hyung-Jeong Yang, Prof.
Dept. of AI Convergence
Chonnam National Univ., South Korea
hjyang@jnu.ac.kr

Thanh Ha Le, Assoc. Prof.
Faculty of Information Teachnology
VNU-UET, Hanoi, Vietnam
ltha@vnu.edu.vn

Ngoc-Huynh Ho, PhD
Postdoc Fellow, Biggs Institute
UT Health San Antonio, USA
hon3@uthscsa.edu