NHAT LE

(+84) 78-422-6065 ⋄ minhnhatvt2@gmail.com

Homepage ⋄ Google Scholar

RESEARCH INTERESTS

- **Computer Vision**: 3D reconstruction, visual tracking system, human motion capture, human behaviour analysis, human-scene synthesis and understanding

- **Machine Learning**: Deep learning, semi-supervised and unsupervised learning, representation learning, generative modeling

EDUCATION

Bachelor of Science (Honours) in Information Technology   *Aug. 2017 - Aug. 2021*
University of Science, VNU-HCMC, Vietnam   GPA 8.85/10
(The university is among the top 2 in Vietnam in Computer Science)

PUBLICATIONS

* indicates equal contribution

1. **Nhat Le**, Thang Pham, Tuong Do, Erman Tjiputra, Quang Tran, Anh Nguyen. Music-Driven Group Choreography. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023. (Core Ranking: A*)*

2. **Nhat Le***, Khanh Nguyen*, Quang Tran, Erman Tjiputra, Bac Le, Anh Nguyen. Uncertainty-aware Label Distribution Learning for Facial Expression Recognition. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023. (Core Ranking: A)*

3. **Nhat Le**, Khanh Nguyen, Anh Nguyen, Bac Le. Global-local attention for emotion recognition. *Neural Computing and Applications, 2022. (Journal article, IF: 5.6, Q1)*

EXPERIENCE

AI Researcher   *Oct. 2021 - Present*
AIOZ Singapore

- AI Avatar: developing methods for generating audio-driven 2D talking face, reconstructing and visualizing the 3D head animations.

- Dancing into Metaverse: developing multi-person human motion capture system from single-view video and building a large-scale 3D group dance database. Designing and implementing techniques for high-quality automatic dance animation creation.

Teaching Assistant   *Sept. 2021 - Feb. 2022*
University of Science, VNU-HCMC

- Preparing and grading assignments.

- Providing tutorials and discussions to students in the courses.

- Courses: Introduction to Artificial Intelligence, Introduction to Data Science, Data Mining and Applications.

Research Intern   *Jun. 2020 - Sep. 2020*
Department of Computer Science, University of Science, VNU-HCMC

- Assisting in collecting data from classroom cameras in the university to analyze the attitude and emotions of the students towards the lectures.

- Exploring several approaches and conducting literature review on human emotion recognition.

PROJECTS

Thesis: Deep Learning for Image-based Emotion Recognition in the Wild *Jan. 2021 - Jul. 2021*

Thesis (Grade: 10/10), Supervisor(s): Prof. Bac Le and Asst. Prof. Anh Nguyen

- We focus on two key aspects of human face emotion recognition in the wild: handling the ambiguity of facial expressions, and recognizing the emotion under the surrounding context information.

- Published papers: Uncertainty-aware Label Distribution Learning for Facial Expression Recognition (WACV 2023, first round accepted), Global-local attention for emotion recognition (Neural Computing and Applications).

Controllable Group Choreography using Contrastive Diffusion *Jan. 2023 - Present*

Research, In submission to SIGGRAPH ASIA (ACM Transactions on Graphics track)

- We develop a Contrastive Diffusion strategy, which is based on diffusion probabilistic generative model and contrastive learning, to generate high-fidelity and diverse group dance animations.

- We develop a method to trade-off between the consistency and diversity of generated group motions by intervening in the diffusion sampling process.

- Our framework is flexible, can synthesize long-term motions while maintaining coherency, and allows users to combine and edit various generated sequences.

Music-Driven Group Choreography *Mar. 2022 - Nov. 2022*

Research, Supervisor(s): Asst. Prof. Anh Nguyen

- We develop a semi-automatic method to reconstruct high-fidelity multi-person motions from in-the-wild videos and create a large-scale group dance dataset.

- We propose the first strong baseline for group dance synthesis task, which aims to capture both the temporal dynamics of individual motion and the relationship of dancers via new cross-entity attention and spacial encoding scheme.

- Published paper: Music-Driven Group Choreography (CVPR 2023)

Label Distribution Learning with Valence-Arousal for Facial Expression Recognition *Jan. 2021 - Jul. 2021*

Research, Supervisor(s): Prof. Bac Le and Asst. Prof. Anh Nguyen

- We propose a new framework based on Label Distribution Learning to address label ambiguity and inconsistency in most existing facial expression recognition datasets.

- Our method constructs emotion distributions from the provided single label along with the learnable uncertainty, to augment the training process and improve the performance and robustness of the model against label noise and ambiguity.

Global-Local Attention for Emotion Recognition *Jul. 2020 - Dec. 2020*

Research, Supervisor(s): Prof. Bac Le and Asst. Prof. Anh Nguyen

- We aim to solve human emotion recognition problem in unconstrained real-world scenarios with contextual information.

- We design a new cross-attention mechanism that captures the relationship between facial emotion and surrounding background, to help the model focus better on salient regions.

ACHIEVEMENTS

- University scholarship for excellent students, 2017-2021
- 2nd prize at Zalo AI Challenge (prize pool of ~$15000), 2020
- 9th place at Emotion Recognition Challenge VNU-HCM (prize pool of ~$3000), 2019
- Top 5 students of Honor program with academic excellence Award, 2019
- 1st prize at Fujinet Olympiad in Informatics, 2018

SKILLS

Programing Language	Python (Proficient), Java/C++, Matlab, R, LaTeX
Frameworks	Pytorch, Tensorflow, OpenCV, Open3D, Pandas, Numpy, Hugging Face, SciPy
Artificial Intelligence	Computer Vision, 3D Vision, Computer Graphics, Machine Learning, Deep Learning, Generative Model

REFERENCES

Professor Bac Le   lhbac@fit.hcmus.edu.vn
Head of Department of Computer Science
University of Science, VNU-HCMC, Vietnam

Assistant Professor Anh Nguyen   anh.nguyen@liverpool.ac.uk
Department of Computer Science
University of Liverpool, UK