

Thao M. Dang

AI/ML Intern - Summer 2026

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SUMMARY

Dedicated 2nd year Ph.D. student with a firm background in biometrics and mathematics. Interested in fundamental research motivated by real-life applications within computer vision and healthcare. Passionate in developing impact algorithms and explainable deep learning models. Experience in writing patent documents and constructing research papers. Seeking opportunities to gain hands-on experience in real-life projects, sharpen my software development skills, and broaden my knowledge of deep learning as an AI biomedical scientist.

TECHNICAL SKILLS

Languages: Python, C/C++

Skills: Spatial Transcriptomics, scRNA-seq, Whole Slide Image, Transformer, ViT (Vision Transformer), LLaVA (Large Language and Vision Assistant), BLIP-2 (Bootstrapped Language-Image Pre-training), Graph

EDUCATION

University of Texas at Arlington

Ph.D. student, Department of Computer Science and Engineering

U.S.A

2023 - Current

Chonnam National University

Master of Engineering, Department of Electronics and Computer Engineering

South Korea

2018 - 2020

Vietnam National University (VNU HCM) - University of Science

Bachelor of Science, Faculty of Information Technology

Vietnam

2013 - 2017

EXPERIENCE

Research Assistant at SMILE Lab

Aug 2023 – Current

University of Texas at Arlington — Supervisor: Dr. Junzhou Huang

- **Current project:** Combining WSI with ST (spatial transcriptomics), and scRNA-seq (single-cell RNA sequencing) data to infer high-resolution expression data for several downstream tasks, such as TLS (tertiary lymphoid structure) detection and cell type annotation.
- **HAGE project:** Enhancing pathology representation learning by predicting gene expression directly from histological images. HAGE leverages gene-type embeddings that encode relationships among genes, guiding the model to learn biologically meaningful expression patterns. This project is currently under review for MICCAI (2025). I am the first author.
- **MLLM4PUE project:** Applying Multimodal Large Language Models (MLLMs) to generate pathology universal embeddings for several downstream tasks, such as zero-shot cross-modal retrieval, composed retrieval, and patch classification. This project was accepted as a conference paper at ISBI (2024) and is currently under review for ICCV (2025). I am the second author.
- **MFMF project:** Fusing WSI, cell, and text features extracted from multiple foundation models to improve cancer classification tasks. This project was accepted as a conference paper at BCB (2024) and as a journal paper in Frontiers in Medicine, Special Section in Pathology (2025). I am the first author.
- **AstraZeneca's challenge:** Applying SAM (Segment Anything Model) and ensemble learning techniques to improve tumor segmentation accuracy. This project achieved 1st place in the first round and top 3 in the second round of the CoSolve Sprints challenge on 3D MRI mouse cancer segmentation. I am in charge of this project.

Researcher at Decentralized Applied Cryptography Lab

Sep 2022 - Jun 2023

University Of Science — Supervisor: Dr. Thuc D. Nguyen

Internship at Beowulf Blockchain Lab

Jun 2022 - Sep 2022

Beowulf, Vietnam Branch — Supervisor: Dr. William H. Nguyen

Researcher at Advanced Network Lab

Feb 2018 - Jun 2022

Chonnam National University — Supervisor: Dr. Deokjai Choi

PATENTS

1. Deokjai Choi, **Thao M. Dang** and Thuc D. Nguyen, “Method and apparatus for applying absolute value equations transform function preserving similarity as well as irreversibility,” 2024
- KR patent: KR102680224B1 (<https://patents.google.com/patent/KR102680224B1/en>)
2. Deokjai Choi, **Thao M. Dang**, Thuc D. Nguyen, “System and method for verifying user by security token combined with biometric data processing techniques,” 2023
- US patent: US11695564B2 (<https://patents.google.com/patent/US11695564B2/en>)
- KR patent: KR102506815B1 (<https://patents.google.com/patent/KR102506815B1/en>)

PUBLICATIONS

1. **Thao M. Dang**, Haiqing Li, Yuzhi Guo, Hehuan Ma, Feng Jiang, Yuwei Miao, Qifeng Zhou, Jean Gao, Junzhou Huang, “HAGE: Hierarchical Alignment Gene-Enhanced Pathology Representation Learning with Spatial Transcriptomics,” 2025, MICCAI (Accepted)
2. **Thao M. Dang**, Qifeng Zhou, Yuzhi Guo, Hehuan Ma, Saiyang Na, Thao Bich Dang, Jean Gao, Junzhou Huang, “Abnormality-aware multimodal learning for WSI classification,” *Front. Med., Sec. Pathology*, vol 12, 2025, <https://doi.org/10.3389/fmed.2025.1546452>
3. Qifeng Zhou, **Thao M. Dang**, Wenliang Zhong, Yuzhi Guo, Hehuan Ma, Saiyang Na, Junzhou Huang, “MLLM4PUE: Toward Universal Embeddings in Computational Pathology through Multimodal LLMs,” 2025, arXiv:2502.07221
4. Qifeng Zhou, **Thao M. Dang**, Yuzhi Guo, Hehuan Ma, Wenliang Zhong, Saiyang Na, Jean Gao and Junzhou Huang, “Visual-language contrastive learning for computational pathology with visual-language models,” *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2025 (Accepted)
5. **Thao M. Dang**, Yuzhi Guo, Hehuan Ma, Qifeng Zhou, Saiyang Na, Jean Gao and Junzhou Huang, “MFMF: Multiple foundation model fusion networks for whole slide image classification,” *ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM BCB)*, 2024.
<https://doi.org/10.1145/3698587.3701372>
6. **Thao M. Dang**, Thuc D. Nguyen, Thang Hoang, Huynseok Kim, A. B. J. Teoh and Deokjai Choi, “AVET: A novel transform function to improve cancellable biometrics security,” *IEEE Transactions on Information Forensics and Security (TIFS)*, vol. 18, pp. 758-772, 2022. doi 10.1109/TIFS.2022.3230212
7. **Thao M. Dang**, Lam Tran, Thuc D. Nguyen and Deokjai Choi, “FEHash: Full Entropy Hash for face template protection,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pp. 3527-3536, 2020. doi: 10.1109/CVPRW50498.2020.00413
8. **Thao Dang** and Deokjai Choi, “A survey on face-based cryptographic key generation,” *Korean Institute of Smart Media*, vol. 9, no. 2, pp. 39-50, 2020. doi: 10.30693/smj.2020.9.2.39
9. Lam Tran, **Thao Dang** and Deokjai Choi, “A binarization method for extracting high entropy string in gait biometric cryptosystem,” *Proceedings of International Symposium on Information and Communication Technology (SoICT)*, pp. 273-280, 2018. doi: 10.1145/3287921.3287960

ORAL PRESENTATIONS

1. ACM BCB
- “MFMF: Multiple foundation model fusion networks for whole slide image classification” (rapid-fire), November 2024
2. CVPR Biometrics Workshop
- “FEHash: Full Entropy Hash for face template protection” (long speech), June 2020
3. Eduroam Korea Seminar (National Information Society Agency, NIA)
- “WRIX framework for Eduroam system in Korea”, November 2019

ADDITIONAL EXPERIENCE

Ad hoc reviewer of IEEE Access

Teaching assistant of the following courses:

- Artificial intelligence (UTA)
- Design and analysis of algorithms (UTA)
- Introduction to computer science and engineering (UTA)
- Computer network and security (CNU)
- Data communication (CNU)

REFERENCE

Junzhou Huang, Ph.D.

Professor in the Department of Computer Science and Engineering, University of Texas at Arlington, U.S.A