

Hao Phung

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RESEARCH INTERESTS

My primary research interests focus on generative models, with a particular emphasis on diffusion models.

EDUCATION

- **Vietnam National University Ho Chi Minh City - University of Science** Viet Nam
Bachelor of Computer Science; GPA: 8.40/10 (in-major GPA: 9.05/10); Rank: 14/320 Aug 2016 – Nov 2020

PUBLICATIONS

(*) denotes equal contribution

- Hao Phung*, Quan Dao*, Trung Dao, Hoang Phan, Dimitris N. Metaxas, Anh Tran, **DiMSUM: Diffusion Mamba - A Scalable and Unified Spatial-Frequency Method for Image Generation**, in *Neural Information Processing Systems (NeurIPS)*, 2024.
- Quan Dao*, Hao Phung*, Binh Nguyen, Anh Tran, **Flow Matching in Latent Space**, *arXiv preprint*, 2023. [[paper](#), [code](#), [page](#)]
- Thanh Van Le*, Hao Phung*, Thuan Hoang Nguyen*, Quan Dao*, Ngoc Tran, Anh Tran, **Anti-DreamBooth: Protecting users from personalized text-to-image synthesis**, in *International Conference on Computer Vision (ICCV)*, 2023. [[paper](#), [code](#), [page](#)]
- Hao Phung*, Quan Dao*, and Anh Tran, **Wavelet Diffusion Models are fast and scalable Image Generators**, in *Computer Vision and Pattern Recognition (CVPR)*, 2023. [[paper](#), [code](#)]
- H. Vo*, T.H. Phung*, and N. Ly, **VQASTO: Visual Question Answering System for Action Surveillance based on Task Ontology**, in *NAFOSTED Conference on Information and Computer Science (NICS)*, 2020. [[paper](#)]

EXPERIENCE

- **VinAI Research** Hanoi, Vietnam
AI Research Resident - Advised by [Dr. Anh Tran](#) Aug 2021 - now
 - Project: [Flow Matching in Latent Space](#)
 - * Introduce a latent flow matching framework that targets high-resolution image synthesis and various types of conditional image synthesis.
 - Project: [Anti-DreamBooth: Protecting Users from Personalized Text-to-Image Synthesis \(filed for a US patent\)](#)
 - * Introduce perturbation learning algorithms for enhanced user protection against malicious risks in personalized text-to-image synthesis.
 - Project: [Wavelet Diffusion Models are fast and scalable Image Generators \(filed for a US patent\)](#)
 - * Propose a wavelet-based diffusion scheme that accelerates image generation by leveraging low- and high-frequency components of wavelet subbands at the image and feature levels.*Applied Rotation Program - Led by [Mr. Tin Trung Duong](#)* Jul 2022 - Oct 2022
 - Present a pipeline for Object Search using Open Vocabulary Object Detection that enables the retrieval of similar outputs based on a query object.*AI Engineering - Advised by [Dr. Toan Duc Bui](#) and [Dr. Rang Nguyen](#)* Dec 2020 - Aug 2021
 - Investigated SOTA semi-supervised learning for Image Classification and Monocular 3D Object Detection.
 - Validated and benchmarked AI models for Autopilot projects (e.g. Camera Degradation, Lane detection).
- **Skeleton-Based Abnormal Behavior Recognition** Ho Chi Minh, Vietnam
Research Collaborator - Led by [Assoc. Prof. Ngoc Quoc Ly](#) (cooperated with [SNA Global](#)) Sep 2019 - Mar 2020
 - Developed a real-time anomaly action recognition system by accelerating pose tracking and transforming skeleton sequences into spatio-temporal features for action classification using EfficientNet.

- **KMS Technology** Ho Chi Minh, Vietnam
AI Engineer Intern - Advised by [Mr. Hoa Trong Vu](#) *Aug 2019 - Nov 2019*
 - Worked on an image matching problem for automated software testing by manually collecting and refining images, followed by fine-tuning a classification network on the curated dataset.

PROFESSIONAL ACTIVITIES

- Reviewer: NeurIPS (2024), ECCV (2024), SIGGRAPH (2024), TPAMI (2023)

HONOURS AND AWARDS

- Outstanding reviewer in ECCV 2024 *2024*
- Outstanding undergrad thesis award *2021*
- Top 5 IT students in academic year *2018 - 2019*

PROGRAMMING SKILLS

- **Languages:** Python, C/C++, HTML/CSS, SQL.
- **Technologies:** PyTorch, Tensorflow, OpenCV, Scikit-learn, Git, L^AT_EX, Docker, Linux.

LANGUAGES

- Vietnamese: Native
- English: IELTS Academic 7.0
- Cantonese: Beginner

EXTRACURRICULAR ACTIVITIES

- **AI Day 2022** Hanoi, Vietnam
Panel speaker *Aug 2022*