Hao Phung

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Research interests

My primary research interests focus on generative diffusion models, spanning across vision and text domains.

Education

- **Cornell University** — NY, USA
  PhD in Computer Science — *Aug 2024 – now*
- **Ho Chi Minh City University of Science** — HCM, Viet Nam
  Bachelor of Computer Science; Top 5% — *Aug 2016 – Nov 2020*

Publications

(*) denotes equal contribution

MIDL 2026 — **HyperCT: Low-Rank Hypernet for Unified Chest CT Analysis** [paper, code]
Fengbei Liu, Sunwoo Kwak, Hao Phung, Nusrat Binta Nizam, Ilan Richter, Nir Uriel, Hadar Averbuch-Elor, Deborah Estrin, Mert R. Sabuncu

NeurIPS 2025 — **Encoder-Decoder Block Diffusion Language Models for Efficient Training and Inference** [paper, code, page]
Marianne Arriola, Yair Schiff, Hao Phung, Aaron Gokaslan, Volodymyr Kuleshov

ICLR 2025 — **Simple and Controllable Uniform Discrete Diffusion Language Models** [paper, code, page]
Yair Schiff, Subham Sekhar Sahoo*, Hao Phung*, Guanghan Wang*, Sam Boshar, Hugo Dalla-torre, Bernardo P Almeida, Alexander Rush, Thomas Pierrot, Volodymyr Kuleshov*

AAAI 2025 — **Self-Corrected Flow Distillation for Consistent One-Step and Few-Step Image Generation** [paper]
Quan Dao, Hao Phung*, Trung Dao, Dimitris N. Metaxas, Anh Tran*

NeurIPS 2024 — **DiMSUM: Diffusion Mamba - A Scalable and Unified Spatial-Frequency Method for Image Generation** [paper, code, page]
Hao Phung, Quan Dao*, Trung Dao, Hoang Phan, Dimitris N. Metaxas, Anh Tran*

ICCV 2023 — **Anti-DreamBooth: Protecting users from personalized text-to-image synthesis** [paper, code, page]
Thanh Van Le, Hao Phung*, Thuan Hoang Nguyen*, Quan Dao*, Ngoc Tran, Anh Tran*

CVPR 2023 — **Wavelet Diffusion Models are fast and scalable Image Generators** [paper, code]
Hao Phung, Quan Dao*, and Anh Tran*

Preprints

(*) denotes equal contribution

2026 — **Raster2Seq: Polygon Sequence Generation for Floorplan Reconstruction** [paper, code]
Hao Phung, Hadar Averbuch-Elor

2023 — **Flow Matching in Latent Space** [paper, code, page]
Quan Dao, Hao Phung*, Binh Nguyen, Anh Tran*

Experience

- **Apple** — Seattle, US
  Machine Learning Research Intern - Advised by Dr. Haoxuan You — *Jun 2025 - Aug 2025*
  - Worked on Large Language Model.
- **Snapedit** — Hanoi, Vietnam
  Remote AI Engineer — *Jun 2024 - Nov 2024*
  - Developed AI applications for oldphoto restoration and makeup transferring.

- **VinAI Research** (now Qualcomm AI Research) — Hanoi, Vietnam
  AI Research Resident - Advised by Dr. Anh Tran — *Aug 2021 - Jul 2024*
  - Improved training and sampling efficiency of 2D diffusion models (DiMSUM, LFM, WaveDiff†).
  - Investigated security vulnerabilities in diffusion models (Anti-DreamBooth†).
  - Distilled diffusion models for faster sampling (Self-Corrected Flow Distillation).

  Applied Rotation Program - Led by Mr. Tin Trung Duong — *Jul 2022 - Oct 2022*
  - Introduced a pipeline for Object Search problem 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 recognition.

- **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

(‡) *recognized as top reviewers*

- Conference Reviewer: CVPR (2026, 2025), ECCV (2026, 2024‡), ICCV (2025), NeurIPS (2025,2024‡), ICLR (2026, 2025), ICML (2025), SIGGRAPH (2026, 2024), SIGGRAPH ASIA (2025)
- Journal Reviewer: TPAMI (2023), TIP (2025)

Honours and Awards

- Outstanding undergrad thesis award — *2021*
- Top 5 students in academic year — *2018 - 2019*

Teaching Assistant

- CS5112 - Algorithms for Applications (*Fall 2024*), ECE5545/CS5775 - Machine Learning Hardware and Systems (*Spring 2025*)

Programming Skills

- **Languages**: Python, C/C++.
- **Technologies**: PyTorch, Tensorflow, OpenCV, Scikit-learn, Git, LaTeX, Docker, AWS/GCP, Linux.

Languages

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

Extracurricular Activities

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

† indicates the work has been filed for a US patent