

Trung Dao

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PUBLICATIONS

(*) denotes equal contribution.

- [P1] **Trung Dao***, Duc Hong Vu*, Cuong Pham and Anh Tran. "EFHQ: Multi-purpose ExtremePose-Face-HQ dataset." CVPR, 2024.
- [P2] **Trung Dao**, Thuan Nguyen, Thanh Le, Duc Vu, Khoi Nguyen, Cuong Pham, Anh Tran. "SwiftBrushV2: Make Your One-step Diffusion Model Better Than Its Teacher." ECCV, 2025.
- [P3] 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." NeurIPS, 2024.
- [P4] Quan Dao*, Hao Phung*, **Trung Dao**, Dimitris N. Metaxas, Anh Tran. "Self-Corrected Flow Distillation for Consistent One-Step and Few-Step Image Generation." AAAI, 2025.
- [P5] Anonymous. "SNOOPI: Supercharged One-step Diffusion Distillation with Proper Guidance." Under review, 2024.
- [P6] Anonymous. "One-for-All: Unifying One-step and Few-step Image Generation in a Single Multi-Purpose Model." Under review, 2024.

EXPERIENCE

- **VinAI Research** Vietnam
Research Resident March 2023 - Current
 - **Advisor:** Dr. **Anh Tran**, Dr. **Cuong Pham**.
 - **Research Focus:** Generative vision models, emphasizing GANs and diffusion models.
 - **Past works:**
 - Improved quality of one-step and few-step text-to-image diffusion models [P2, P4, P5, P6].
 - Introduced a novel diffusion model architecture integrating Mamba for enhanced efficiency and scalability [P3].
 - Developed a large-scale extreme-view face dataset to enhance synthesis quality and benchmark face recognition [P1].
 - **Managing HPC cluster:** Managed and optimized a high-performance computing (HPC) cluster with 48 A100 GPUs, increasing real-time GPU utilization by **30x** through a novel queuing strategy.
- **VinAI Research** Vietnam
AI Engineer December 2020 - March 2023
 - **Advisor:** Dr. **Dzung Nguyen**, Dr. **Anh Tran**, Prof. **Minh Hoai Nguyen**.
 - **Face Recognition Module**
Role: Module Owner.
 - Multi-node model training on large-scale datasets (up to 60M images).
 - Created a framework for profiling, parameter tuning, and optimizing the training process on SLURM.
 - Developed Face Recognition Models for diverse applications, including masked face access control and surveillance CCTV, deployed at scale with **50K daily active identities**.
 - Achieved **8th** place overall (**2nd** on Masked Dataset) in ICCV21-MFR Competition, July 2022.
 - Built multiple supporting apps for Face Recognition: Model Visualization, Video Inference, Data Labeling Tool (support semi-automated interclass/ intraclass cleaning).
 - Quantized and deployed a module of 3 models on Qualcomm's AIC100 (up to 30 concurrent streams), also deployed to NVIDIA's device using TensorRT and to Android using multiple inference engines (ONNX, MNN, and NCNN).
 - **Face Detection Module**
Role: Module Co-Owner.
 - Trained multi-task masked-face detector for surveillance cameras, handling tiny faces, blocking artifacts and occlusions.
 - Participated in building the AI SDK. Optimized and deployed various models to run on Xilinx devices. Involved in building an asynchronous inference flow for multi-stream (using DeepStream), the final SDK can run up to **60 streams** simultaneously on Xilinx ZCU104.
 - Built an object detection visualization tool based on an open-source project to analyze data and model output.
 - Developed a framework to generate pseudo-masks for training datasets using 2D and 3D methods.
 - **Traffic Sign/Light Recognition Module for Autonomous Driving**
Role: Module Co-owner.

- Designed a novel data pipeline based on CVAT to accelerate video dataset labeling, achieving a dataset with *six superclasses and 317 child classes*.
- Co-managed labeling team to guarantee the data's quality.
- Developed a hierarchical multi-task model, achieving an F1-score of **98.3** on a private long-tailed dataset of **171 classes**.
- Addressed varying lighting conditions and implemented a ReID model to enhance traffic sign tracking accuracy.
- Quantized and deployed models using TensorRT for NVIDIA's device.

◦ Noise Cancelling on Smartphone

Role: Engineer.

Responsible for converting models across various frameworks (PyTorch, TensorFlow, ONNX) into TFLite, followed by quantization and smartphones deployment. Optimized existing algorithm with FFT, achieving a **40%** runtime reduction.

◦ SmartData

Role: Engineer.

Redesigned the data labeling pipeline of the backend system built with Flask. Introduced a new end-to-end multi-step labeling feature, improving labeling efficiency by **30%**. Developed statistical tools to analyze the company's data lake.

• Got It Inc.

Vietnam

Software Engineer

Oct 2019 - January 2020

◦ GotIt Backend System

- Worked on task scheduling for the email system.
- Techstack: Celery, Flask, ReactJS, PostgreSQL.

• Holomia

Vietnam

Game Developer

Feb 2018 - June 2019

◦ TopOfVietnam: VR Game

- Developed a stable game backend system enabling autonomous communication with the Game Booth System and user database storage, **deployed at Landmark 81 SkyView** with thousands of active users.
- Techstack: UE4 (C++ and Blueprints), Flask, PostgreSQL.

PROFESSIONAL SERVICES

Reviewer: ICLR(2025), WACV(2025), NeurIPS(2024), CVPR(2023, 2024, 2025), ECCV(2024), ACCV(2022, 2024).

CERTIFICATES, HONORS AND AWARDS

Academic Excellence Scholarship

Thang Long University

2016-2021

Rank 2nd

VietAI Machine Learning Foundation Hanoi

2020

Rank 2nd

Fintech Track, Junction X Hanoi

2018

Rank 76th

ICPC Asia Hanoi Regional Contest

2018

EDUCATION

Thang Long University

Bachelor of Computer Science; GPA: 9.0/10.0 (**Valedictorian**)

Vietnam

Aug 2016 - April 2021

SKILLS SUMMARY

Languages: C++, Python, Unix scripting, SQL

Tools: PyTorch, TensorFlow, TensorRT, ONNX, NCNN, MNN, OpenCV, Docker, Git, Jira

REFERENCES

Dr. Dzung Nguyen: Head of Generative AI & AI Optimization Department, VinAI Research, Vietnam: v.dungnt244@vinai.io

Dr. Anh Tran: Head of Computer Vision Group of Research Department, Vietnam: v.anhtt152@vinai.io

Prof. Minh Hoai Nguyen: Deputy Director of Research Department, VinAI Research, Vietnam: v.hoainm@vinai.io