Duc Vu

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Education

Miami University - Oxford, Ohio *2019 - 2024*
Bachelor of Science, Data Science and Statistics GPA: 3.83/4.0
Bachelor of Arts, Economics
***Honors**: Cum Laude*

Publications

Preprints

* - equal contribution

3. **Anti-I2V: Safeguarding your photos from malicious image-to-video generation.**
Duc Vu, Anh Nguyen, Chi Tran and Anh Tran.
Under Review, 2025.

2. **InverFill: One-Step Inversion for Enhanced Few-Step Diffusion Inpainting.**
Duc Vu*, Kien Nguyen*, Trong-Tung Nguyen, Ngan Nguyen, Phong Nguyen, Khoi Nguyen, Cuong Pham and Anh Tran.
Under Review, 2025.

1. **VideoDrift: Plug-and-Play Video Refinement for Diffusion Models via KV-Anchored Attention.**
Ngan Nguyen, **Duc Vu**, Trong-Tung Nguyen, Phuc Lai, Cuong Pham and Anh Tran.
Under Review, 2025.

Conference Publications

4. **Improved Training Technique for Shortcut Models.**
Anh Nguyen*, Viet Nguyen*, **Duc Vu**, Trung Tuan Dao, Chi Tran, Toan Tran and Anh Tran.
*Advances in Neural Information Processing Systems (**NeurIPS**), 2025.*

3. **SwiftBrush v2: Make Your One-step Diffusion Model Better Than Its Teacher.**
Trung Tuan Dao, Thuan Hoang Nguyen*, Thanh Le*, **Duc Vu***, Khoi Nguyen, Cuong Pham and Anh Tran.
*European Conference on Computer Vision (**ECCV**), 2024.*

2. **EFHQ: Multi-purpose ExtremePose-Face-HQ dataset.**
Trung Tuan Dao*, **Duc Vu***, Cuong Pham, Anh Tran.
*Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024.*

1. **Preserving simulation insight while removing data: verification of compressed simulation traces via machine learning.**
My Nguyen, **Duc Vu**, Anh Vo, Luke Liang and Philippe J Giabbanelli.
*Annual Modeling and Simulation Conference (**ANNSIM**), 2023.*

Work Experience

Qualcomm Research *March, 2025 - Current*
AI Research Resident *Hanoi, Vietnam*
Advisors: Dr. Anh Tran

- Introduced an image cloaking framework that effectively protects user images from malicious use across diverse image-to-video models, including both UNet- and DiT-based architectures.
- Devised architectural refinements and training strategies that improved Shortcut models, achieving FID 5.27 and 2.05 on ImageNet 256×256 with one and four sampling steps, respectively.
- Introduced a one-step diffusion inversion network that enables high-quality, few-step image inpainting with only 0.07 s of additional overhead.
- Developed a one-step frame-wise enhancement module that boosts video fidelity and delivers 2.8×–4.7× faster end-to-end performance compared to previous methods.

VinAI Research *March, 2022 - March, 2025*
AI Research Resident *Hanoi, Vietnam*
Advisors: Dr. Anh Tran

- Engineered a dataset of 30,000 augmented infrared facial images using a 3D Morphable Model, boosting driver facial landmark detection accuracy by 15% for driver monitoring system (DMS).

- Established a benchmark dataset of 450,000 frames for extreme head poses, cutting error rates by 10-20% for the then-current state-of-the-art face generation and reenactment techniques.
- Introduced a fused one-step diffusion model by combining two efficient training strategies and a novel CLIP loss, resulting in a then-current state-of-the-art Fréchet Inception Score of 8.14.

PIXTA Co. Ltd *December, 2020 - July, 2021*
Data Scientist Intern *Hanoi, Vietnam*

- Engineered a dataset of 30,000 augmented infrared facial images using a 3D Morphable Model, boosting driver facial landmark detection accuracy by 15% for driver monitoring system (DMS).
- Established a benchmark dataset of 450,000 frames for extreme head poses, cutting error rates by 10-20% for the then-current state-of-the-art face generation and reenactment techniques.
- Introduced a fused one-step diffusion model by combining two efficient training strategies and a novel CLIP loss, resulting in a then-current state-of-the-art Fréchet Inception Score of 8.14.

Selected Awards and Honors

- President's List - Miami University, Oxford *Fall 2019, Spring 2023*
- Dean's List - Miami University, Oxford *Spring 2020, Spring 2021, Fall 2022*

Professional Responsibilities

- *Reviewer:* CVPR (2026), CVPRW (2025), ACCV (2025).

References

Dr. Anh Tran
Principal Research Scientist, Qualcomm AI Research, Vietnam
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Assoc. Prof. Cuong Pham
Dean, Faculty of Artificial Intelligence, Posts and Telecommunications Institute of Technology (PTIT), Vietnam
Director, PTIT.AI Research Lab, Posts and Telecommunications Institute of Technology (PTIT), Vietnam
Visiting Research Scientist, Qualcomm AI Research, Vietnam
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Senior Research Scientist, Qualcomm AI Research, Vietnam
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