

Quang (Ho) Nguyen

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Research Interests

My research focuses on computer vision and machine learning, particularly generative models, their applications, and trustworthy aspect. I work on improving both the controllability and quality of text-to-image models, optimizing them for downstream tasks such as editing or inpainting, and ensuring their ethical deployment through content detection and copyright protection methods.

Education

Ho Chi Minh City University of Technology (HCMUT)

Ho Chi Minh City, Vietnam

B.E in Computer Science

2020-2024

- **GPA:** 8.46/10.00 (3.6/4.0)
- **Thesis:** Protecting Identities From Malicious Purposes of Personalized Text-to-Image Generation (9.8/10.0)
- **Advisor:** Dung Nguyen, Ph.D.

Publications

Quang Nguyen*, Truong Vu*, Anh Tran, Khoi Nguyen, “[Dataset diffusion: Diffusion-based synthetic data generation for pixel-level semantic segmentation](#)”, in *Advances in Neural Information Processing Systems (NeurIPS)*, 2023.

Duc Quang Nguyen, Nghia Quang Vo, Tinh Tien Nguyen, Khuong Nguyen-An, **Quang Nguyen**, Dang N. Tran, Tho Thanh Quan, “[BeCaked: An explainable artificial intelligence model for COVID-19 forecasting](#)”, in *Scientific Reports*, 2022.

Quang Nguyen*, Hoai Ngan Nguyen*, Trong Tung Nguyen*, Khoi Nguyen, Cuong Pham, Anh Tran, “**UPLIFT:** Uplifting Image Quality to Breathe New Life into Generated Visuals”. Under review, 2024.

Quang Nguyen, Truong Vu, Cuong Pham, Khoi Nguyen, Anh Tran, “**DynaMark:** Dynamic Watermarking for Image Generation Using Wavelet Transform”. Under review, 2024.

Trong Tung Nguyen, **Quang Nguyen**, Khoi Nguyen, Cuong Pham, Anh Tran, “**SwiftEdit:** Lightning Fast Text-Guided Image Editing via One-Step Diffusion”. Under review, 2024.

Research Experience

VinAI Research

Ha Noi, Vietnam

AI Research Resident

Mar 2024 - Current

Advisors: Anh Tran, Ph.D. & Khoi Nguyen, Ph.D.

Research Interest: Diffusion Models, Trustworthy GenAI.

- Project: “Enhancing degraded images generated by diffusion models”
 - Introduced a first inversion technique to address unstable image quality in multi-step and one-step diffusion models using an encoder-based approach, achieving state-of-the-art results on several benchmarks.
- Project: “One-step image editing”
 - Introduced a novel inversion network and training pipeline to achieve instant-level image editing that is **7×** faster than few-step models and **55×** faster than multi-step approaches while achieving comparable results.
- Project: “Copyright protection with diffusion models”
 - Introduced a watermarking method that can be applied for both real or generated images by leveraging latent space of diffusion models and wavelet transformation.

VinAI Research

Ha Noi, Vietnam

AI Engineer (Applied Rotation Program)

Sep 2024 - Nov 2024

Team Lead: Tri Dung Nguyen, Ph.D.

Project: Efficient 4K image editing

- Contributed to the *GenAI and Optimization* team by developing a lightweight model and editing mechanism capable of editing 4K images on edge devices while maintaining consistency, utilizing distillation and quantization techniques.

VinAI Research

Ha Noi, Vietnam

AI Research Intern

Feb 2023 - Mar 2024

Advisors: Anh Tran, Ph.D. & Khoi Nguyen, Ph.D.

Research Interest: Diffusion Models.

- Project: “Synthesizing datasets using Stable Diffusion” (*NeurIPS 2023*)
 - Introduced a method leveraging cross-attention and self-attention maps to generate semantic label masks during the image generation process, enabling the creation of a semantic segmentation dataset.
- Project: “Improving 3D object detection models with synthetic labels” (*Applied team*)
 - Contributed to the *Surrounding-View- Monitoring* team by developing a method to generate pseudo labels for fisheye images, enabling the training of a 3D object detector for use in an AutoParking system.

Academic Services

Reviewer of CVPR Workshop (2024), NeurIPS (2024), BMVC (2024), ICLR (2025), CVPR (2025)

Volunteer of [SyntaGen CVPR Workshop 2024](#)

Honors and Awards

NeurIPS Scholar Award	2023
Outstanding Academic Performance Scholarship	2020-2023
OISP Scholarship For Outstanding Academic Performance	2020-2024

Technical Skills

Programming skills

- Proficient: Python (PyTorch, TensorFlow, Numpy, Scikit-learn)
- Familiar: C++, Javascript

Tools

- Docker, Git, Django, React Native, Microsoft Azure

References

Dr. Anh Tran

Head of Computer Vision, VinAI

Ha Noi, Vietnam

Former Amazon Research Scientist

PhD in Computer Science, University of Southern California, USA

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Assoc. Prof. Cuong Pham

Dean of Artificial Intelligence Faculty, PTIT

Hanoi, Vietnam

Visiting Research Scientist, VinAI

PhD in Computer Science, Newcastle University, Newcastle upon Tyne, UK

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Dr. Duc Dung Nguyen

Director of AITechLab, HCMUT

Ho Chi Minh City, Vietnam

PhD in Computer Science, Sungkyunkwan University, South Korea

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