Hue Nguyen

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Research Interests

Computational photography: image/video restoration.
Data-efficient in computer vision: self-supervised learning, unsupervised learning, unsupervised domain adaptation.

Education

VNU University of Engineering and Technology (VNU UET) Aug. 2017 – Jun. 2021
Bachelor of Information Technology *Hanoi, Vietnam*

- GPA: 3.86/4.00 (ranked 3rd in university).
- Degree classification: High distinction.
- Advisor: Dr. Diep Nguyen
  Thesis: Handwritten text generation with stroke vectorization and augmentation.

Experience

AI Engineer – VinAI Research – vinai.io July. 2022 – Present
Smart Mobility Team - Advised by Dr. Rang Nguyen *Hanoi, Vietnam*

- Work on surrounding view monitoring system for drivers in low light environment. A real-time image denoising module have been delivered to the final product.
- Work on automated valet parking, focusing on simultaneous localization and mapping problem. My role is to explore and implement algorithms for reconstructing the local map surrounding the vehicle with noisy motion estimation.

AI Resident – VinAI Research Oct. 2020 – July. 2022
Computer Vision Group - Advised by Dr. Rang Nguyen and Dr. Khoi Nguyen *Hanoi, Vietnam*

- Research topic: Image and Video Enhancement.
- Review related works of image and video restoration. Propose and implement self-supervised frameworks to enhance the quality of images and videos under extreme lighting conditions.
- Design, conduct experiments and write scientific papers.

Undergraduate Research Assistant - VNU UET Jun. 2019 – Oct. 2020
Software Engineering Laboratory - Advised by Dr. Hieu Dinh Vo *Hanoi, Vietnam*

- Research topic: automatic parallelization for C/C++ programs to reduce the running time of a program on a multi-processor system.
- Review related works, propose and implement algorithms to find factors that prevent parallelizing programs.
- Design a high-level architecture and algorithms for an automatic program parallelization framework.

Projects

Domain adaptation for vision tasks under adverse weather conditions Aug. 2022 - Present
Advised by Prof. Michael S. Brown and Dr. Rang Nguyen

- Propose several ideas to explore the invariant representation for deep learning feature under different weather conditions and conduct experiments to verify them.

Image and video enhancement under extreme light conditions Oct. 2020 - July. 2022
Advised by Dr. Rang Nguyen and Dr. Khoi Nguyen

- Research and propose a novel self-supervised framework for image enhancement and exposure correction. This approach helps training model without requiring paired or unpaired training data.
- Review related works in the topic of HDR video reconstruction. Propose several ideas to train models in self-supervised manner and conduct experiments to verify them.

Handwritten text generation with stroke vectorization and augmentation Nov. 2020 - Apr. 2021
Undergraduate thesis - Advised by Dr. Diep Nguyen

- Research and propose a novel method to generate a diverse style handwriting dataset by modifying text images at stroke levels.

Publications

PSENet: Progressive Self-Enhancement Network for Unsupervised Extreme-Light Image Enhancement
Hue Nguyen*, Diep Tran, Khoi Nguyen, Rang Nguyen*
Published at WACV 2023 - Awarded the **Best Paper Honorable Mention Award**.

Practical approach to access the impact of global variables on program parallelism
Thu-Trang Nguyen, ***Hue Nguyen****, Quang-Cuong Bui, Pham Ngoc Hung, Dinh-Hieu Vo, Shigeki Takeuchi*
Published at ACOMP 2020.

Academic Honors and Awards

The Semester Excellence Scholarship 2017 - 2021
VNU University of Engineering and Technology
- Award top 5% of students with the greatest academic performance.

POSCO Scholarship for Excellent Students 2021
Posco T.J.Park Foundation
- Award 2 students with $1000 for academic excellence in university.

Mitsubishi Scholarship for Excellent Students 2020
Mitsubishi UFJ Foundation
- Award 5 students for academic excellence in university.

The First Prize of the Self-driving Car Programming Contest Digital Race 2019
VNU University of Engineering and Technology
- Study and apply a wide range of traditional computer vision algorithms to program the car to drive in a simulator and a race track.

The First Prize of Code War Championship 2019
Topica Edtech Group
- Award $1000 for the team with highest score in a competitive programming contest.

Award for the Valedictorian 2017
VNU University of Engineering and Technology

Skills

Languages:	English (IELTS Overall 7.0).
	Japanese (JLPT N3).
Programming:	Python, C/C++, OpenGL.
Software & Tools:	**Machine learning:** Pytorch, Tensorflow, Scikit learn.
	Others: OpenCV, Matplotlib, ROS.

Extracurricular Activities

Vice President of Human Resource of Technology Club 2018 - 2020
VNU University of Engineering and Technology
- Organize technical events, workshops and classes for Computer Science students.

References

Professor Michael S. Brown, Canada Research Chair in Computer Vision *mbrown@eecs.yorku.ca*
Department of Electrical Engineering and Computer Science
Lassonde School of Engineering, York University, Canada

Dr. Rang Nguyen, Applied Research Scientist *v.rangnhm@vinai.io*
VinAI Research, Vietnam

Dr. Khoi Nguyen, Research Scientist *v.khoiNDM@vinai.io*
VinAI Research, Vietnam