Hao Phung

 hao-pt.github.io | tienhaophung@gmail.com | hao-pt | Google Scholar

EDUCATION

Vietnam National University Ho Chi Minh City - University of Science Viet Nam
Bachelor of Computer Science; GPA: 8.40/10 (in-major GPA: 9.05/10); Rank: 14/320 *Aug 2016 – Nov 2020*

- Coursework: Computer Vision, Machine Learning, Artificial Intelligence, Multivariate Statistical Analysis, Data structures & Algorithms.

Honors thesis: Human action monitoring based on Visual question answering *Aug 2019 - Aug 2020*
Supervisor: Dr. Quoc-Ngoc Ly; Grade: 10/10

- Utilized human-prior knowledge formed as Task Ontology to instruct the system what visual tasks should be performed to produce a suitable answer for an input query under Surveillance context.

PUBLICATIONS

(*) denotes equal contribution

- Quan Dao*, **Hao Phung***, Binh Nguyen, Anh Tran. "Flow Matching in Latent Space". Under review. 2023.

- Thanh Van Le*, **Hao Phung***, Thuan Hoang Nguyen*, Quan Dao, Ngoc Tran, Anh Tran. "Anti-DreamBooth: Protecting users from personalized text-to-image synthesis". arXiv preprint. 2023.

- **Hao Phung***, Quan Dao*, and Anh Tran. "Wavelet Diffusion Models are fast and scalable Image Generators". Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition. 2023.

- H. Vo*, **T.H. Phung***, and N. Ly. "VQASTO: Visual Question Answering System for Action Surveillance based on Task Ontology". 2020 7th NAFOSTED Conference on Information and Computer Science (NICS'20).

EXPERIENCE

VinAI Research Ha Noi, Viet Nam
AI Research Resident *Aug 2021 - now*

- Study conditional flow matching for high-resolution image synthesis and its applications.

- Study efficient-sampling approaches for diffusion models.

- Study self-supervised learning for Pretraining Vision Transformer through contrastive learning framework and masked image modeling.

Applied Rotation Program *Jul 2022 - Oct 2022*

- Present a pipeline for Object Search using Open Vocabulary Object Detection that enables the retrieval of similar outputs based on a query object.

AI Engineering *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, Viet Nam
Research Collaborator - Project coordinator: Dr. Quoc-Ngoc Ly (cooperated with SNA Global) *Sep 2019 - Mar 2020*

- Developed a real-time anomaly action recognition system by enhancing time efficiency for pose tracking and transforming skeleton sequence to image as new spatio-temporal feature for action recognition.

- Improved accuracy of action recognition model by leveraging EfficientNet models and built up a minimal website using Flask framework for demonstration.

- **Leveraged knowledge**: PyTorch, Keras, Flask, Python, OpenCV, Git.

KMS Technology Ho Chi Minh, Viet Nam
AI Engineer Intern *Aug 2019 - Nov 2019*

- ○ Created new dataset (nearly 3000 images) by collecting and refining images manually for Image matching problem. Also, utilized Image Hashing algorithm for filtering out similar samples.
- ○ Increased accuracy by 2.5% (at 96.5%) through fine-tuning state-of-the-art ImageNet models and adding new augmentation methods on the new dataset.
- ○ **Leveraged knowledge**: Tensorflow, OpenCV, Git.

Projects

- **Automatic License Plate Recognition (ALPR)** Apr 2019 - Jun 2019
  - ○ Redesigned a handcraft algorithm for ALPR by adding FloodFill algorithm to extract plate more precisely and post-processing character image in plate to increase the accuracy of plate number recognition.
  - ○ Extended ALPR for motorbike plate recognition by utilizing Haar-Cascade Classifier to detect the plate.
  - ○ **Tech stack**: Python, OpenCV, Haar Cascade Classifier, SVM, Tesseract-OCR, Git.
- **Face Recognition** May 2019 - Jun 2019
  - ○ Built a model for face recognition through utilizing cutting-edge face detection methods (e.g. SSD, Multitask-CNN) and optimizing the SVM model for identity recognition on our dataset.
  - ○ Adopted FaceNet for feature extraction as input to SVM model.
  - ○ **Tech stack**: Python, OpenCV, SSD, FaceNet, SVM, Facial landmarks, Git.

Honours and Awards

- Outstanding thesis award 2020
- Top 5 IT students in academic year 2018 - 2019

Programming Skills

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

Extracurricular Activities

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