Pham Ngoc Quan

ngocquanofficial@gmail.com • 085-731-8283
Personal Website• Linkedin• Scholar • GitHub

EDUCATION

Hanoi University of Science and Technology | Hanoi, Vietnam **Sep 2021 - Present**

- **Major**: B.S. in Data Science | **GPA:** 3.53/4.0
- **Relevant Courses:** Data Structures & Algorithms, Data Science, Natural Language Processing, Computer Vision

Thai Binh Gifted High School | Thai Binh, Vietnam **Sep 2018 - Sep 2021**

- **Major**: Mathematics

PUBLICATIONS

Promoting Ensemble Diversity with Interactive Bayesian Distributional Robustness (submitted to **AISTATS 2025**, under review)

- **Ngoc Quan Pham**, Tuan Truong, Quyen Tran, Tan Minh Nguyen, Dinh Phung, Trung Le

Improving Generalization with Flat Hilbert Bayesian Inference (submitted to **ICLR 2025**, under review)

- Tuan Truong, Quyen Tran, **Ngoc Quan Pham**, Nhat Ho, Dinh Phung, Trung Le

A Robust Pitch-Fusion Model For Speech Emotion Recognition In Tonal Languages (**ICASSP 2024**)

- Pham Viet Thanh, Ngo Thi Thu Huyen, **Pham Ngoc Quan**, Nguyen Thi Thu Trang

RESEARCH EXPERIENCE

Bayesian Inference for Model Fine-tuning | VinAI Research | Hanoi, Vietnam

AI Research Resident *Aug 2024 - Present*

- Developed **Interactive Bayesian Distributional Robustness** (**IBDR**) to enhance ensemble robustness and particle diversity.
- Introduced **Flat Hilbert Bayesian Inference** (**FHBI**) to improve model generalization in infinite-dimensional spaces.
- Investigated advanced finetuning methods for large vision models by integrating Bayesian inference with **LoRA** and **Prompt Tuning**, achieving notable gains in performance across diverse datasets on the **VTAB-1K** benchmark.

Speech Emotion Recognition | NLP Laboratory (BKAI) | Hanoi, Vietnam

Researcher/Student Assistance *May 2023 - Present*

- Implemented audio-visual pipeline including video crawling, face tracking, active speaker detection, face clustering, and data annotation to construct **ViSEC** - the first public Vietnamese emotional speech dataset.
- Implemented a **trustworthy Pseudo-Labeling framework** for Speech Emotion Recognition in low-resource languages such as Vietnamese, achieved SOTA results for SER task with 75% weighted accuracy.
- Utilized continuous **Arousal-Valence** features to fine-tune the pretrained **WavLM** model, creating emotional embeddings that significantly enhance Speech Emotion Recognition (SER) performance.

Vietnamese Spoofing-Aware Speaker Verification | NLP Laboratory (BKAI) | Hanoi, Vietnam

Researcher/Student Assistance *Sep 2023 - December 2023*

- Developed an integrated Automatic Speaker Verification (ASV) and Countermeasure (CM) system, utilizing advanced models (**ECAPA-TDNN**, **RawNet3** for ASV; **AASIST**, **S2pecNet** for CM).
- Introduced a novel fusion layer using **Catboost** to enhance spoofing detection capabilities in Vietnamese speech.
- Successfully achieved third place in both public and private test sets at **VLSP 2023 - VSASV Challenge**.

PERSONAL PROJECT

The book "89 Functional Equation Problems": Compiled functional equation problems, a common topic in the International Mathematical Olympiad, and is currently used by the Thai Binh Mathematics Team.

DB-Tool: Managed relational database dependencies, incorporating algorithms for schema normalization and optimization calculations.

English Vietnamese Machine Translation: Developed a machine translation model based on the pretrained **ViT5**, fine-tuned with the MTET and PhoMT datasets.

Football Player Price Prediction: Implemented a **data crawling system** for the Transfermarkt website using **BeautifulSoup** and **Selenium**, performed **data analyses**, identified **important features**, and utilized machine learning models for predicting player market values.

Sorting Algorithm Visualize Program: Implemented interactive visualizations of different sorting algorithms using **JavaFX**.

ACHIEVEMENTS

Third Prize for Vietnam Mathematical Olympiad 2021

- Issued by Ministry of Education and Training

First Prize for National Startup Contest for Students SV.STARTUP 2023

- Issued by Ministry of Education and Training

Second Prize for SOICT Hackathon 2023 (**AI-Powered BFIS track**)

- Issued by Hanoi University of Science and Technology and BKAI

TECHNICAL SKILLS

Programming Languages: Python (Advanced), Java (Advanced), C++

Frameworks: Pytorch, OpenCV, Huggingface, Scikit Learn, Transformers