CUONG PHAM (Phạm Anh Cường)

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PROFILE

Master's student in Machine Learning with research interest in **Optimization** in general and **Efficient Deep Learning** in particular. In detail, I am primarily working on **Efficiency Training/Fine-Tuning** at the intersection of **Continual Learning**, **Federated Learning**, **Large models**, and partially on **Optimization for Machine Learning**.

EDUCATION

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), UAE   2024 - 2026 (expected)
Master of Science in Machine Learning   GPA: 3.72/4.0 ($\sim$ 94%) [Transcript]

- Selected courses: Mathematics for AI, Advanced Machine Learning, Probabilistic & Statistical Inference, Optimization.
- Research topics: Continual Learning, Federated Learning, Optimization for Machine Learning.
- Supervisor: Prof. Samuel Horváth.

VNU University of Engineering and Technology (VNU-UET), Vietnam   2019 - 2023
Bachelor in Information Technology (Honors Program)   GPA: 3.71/4.0 (8.77/10) [Transcript]

- Graduated with High Distinction, top 5% of CS Department.
- Thesis: "Building a Vietnamese image captioning dataset and developing a visual-text transformation model for generating image captions" (9.5/10).
- Supervisors: Prof. Quang-Thuy Ha, Dr. Van-Quang Nguyen, MS. Thi-Hong Vuong.

PUBLICATIONS

(P = preprint, W = workshop, C = conference, J = journal, R = project report, O = ongoing paper)

[**P.5**] **Cuong Anh Pham**, Praneeth Vepakomma, Samuel Horváth. "TBD" (under-review draft).

[**P.4**] Farshed Abdukhakimov, **Cuong Anh Pham**, Samuel Horváth, Martin Takáč, Slavomir Hanzely. "Polyak Stepsize: Estimating Optimal Functional Values Without Parameters or Prior Knowledge" (preprint 2508.17288, under review for AISTATS'26).

[**P.3**] Quang P.M. Pham, Khoi T. N. Nguyen, Nhi H. Doan, **Cuong A. Pham**, Qinbo Sun, Weimin Qi, Kentaro Inui, Dezhen Song. "SmallPlan: Leverage Small Language Models for Sequential Path Planning with Simulation-Powered, LLM-Guided Distillation" (preprint 2505.00831, under review for ICRA'26).

[**P.2**] **Anh-Cuong Pham**, Van-Quang Nguyen, Thi-Hong Vuong, Quang-Thuy Ha. "KTVIC: A Vietnamese Image Captioning Dataset on the Life Domain" (preprint 2401.08100, short version of Bachelor's thesis).

[**C.1**] Quynh-Trang Pham Thi, **Anh-Cuong Pham,** Ngoc-Huyen Ngo and Duc-Trong Le. "Memory-Based Method using Prototype Augmentation for Continual Relation Extraction" (IEEE RIVF '22).

EXPERIENCE (Research)

MBZUAI, Abu Dhabi, UAE   10/2024 - Present
Graduate Research Assistant

- **(Thesis) Project:** Efficient Training for Continual Learning and Federated Learning (ongoing - Coauthor paper [P.5])
  Supervisors: Prof. Samuel Horváth and Prof. Praneeth Vepakomma
  Developing an algorithm that can preserve the performance of previous tasks in Continual Learning using orthogonality (with possible extension for Federated Continual Learning).
  Skills: Python, Pytorch | Continual Learning, Federated Learning, SVD, LoRA.

- **Project:** Parameter-free SGD Optimization with Polyak stepsize (Coauthored paper [P.4])
  Supervisors: Prof. Samuel Horváth and Prof. Martin Takáč
  (Supported seniors to) Develop an adaptive Polyak-based stepsize for SGD Optimization that does not require approximation for optimal value, with the target to reduce the need for hyperparameter tuning during the training process.
  Skills: Python, Scikit-learn, Pytorch | Optimization.

- **Project:** Small Language Models application for edge-device Robot Learning (extended from the coursework project at MBZUAI, Coauthored paper [P.3])
  (Supported seniors to) Utilizing SLMs with the guidance from LLMs to enable efficient and adaptive real-time inference on edge devices for autonomous robotics path-planning tasks.
  Skills: Python | LLMs.

DSKT Laboratory at VNU-UET, Hanoi, Vietnam   09/2021 - 09/2023
Student Research Intern

- **(Thesis) Project:** Image Captioning (in Vietnamese context) (Coauthored paper [P.2])
  Mentors: Dr. Van-Quang Nguyen and Prof. Quang-Thuy Ha
  Created a new image-caption dataset in Vietnamese and developed a tiny Image Captioning model based on the Transformer framework. The dataset and tiny model were evaluated with variants of Deep Learning-based models.
  Skills: Python, Pytorch, OpenCV | Computer Vision, NLP.

- **Project:** Applying Prototype Augmentation for Continual Relation Extraction (Coauthored paper [C.1])
  Mentors: MS. Quynh-Trang Thi Pham and Dr. Duc-Trong Le
  (Supported seniors to) Apply a prototype augmentation mechanism to consistent representation learning to reduce saved data for the next phase of continual learning, but still alleviate the forgetting problem.
  Skills: Python | Continual Learning, NLP.

EXPERIENCE (Industry)

Viettel Networks, Hanoi, Vietnam   10/2023 - 07/2024
Data Scientist

- Researched and applied **Computer Vision** (image processing, segmentation, classification) for tasks with telecommunication images to automate processes instead of using manual work for network maintenance.

- Solved **Big Data** problems: using Machine Learning with GPUs with large-scale telecommunication data (100M to 10B records), optimizing and automating processes by predicting users' usage and assisting in the allocation of network bandwidth to improve network users' experience.

GHTK Joint Stock Company, Hanoi, Vietnam
R&D Engineer   08/2022 - 08/2023

- Researched and developed (team of 2 persons) a mail spam filtering based on **Deep Learning** models, and **NLP** frameworks (BERT, DeBERTa, PhoBERT), achieving the f1-score of 90% after training with 50k emails, it was then deployed to the company's internal email system.

- Participated in building an internal chatbot using rule-based techniques.

R&D Engineer Intern   05/2022 - 08/2022

- MasterDev Season 4 Internship Program in Research and Development domain. Training about Probability & Statistics, Natural Language Processing, and Big Data (Hadoop and Spark).

- Final Project about building a text classification for Vietnamese documents using doc2vec.

HONORS & AWARDS

Full scholarship for 2 years of the Master of Science program at MBZUAI	2024
Third Prize (5th place) in Linear Algebra, VNU-UET Mathematical Olympiad	2023
Third Prize (6th place) in Linear Algebra, VNU-UET Mathematical Olympiad	2022
Yamada Scholarship (6 students/year at VNU-UET)	2022
Third Prize (5th place) in Linear Algebra, VNU-UET Mathematical Olympiad	2021
Excellent Scholarship for top highest GPA from VNU-UET (rank 5th)	2021
Attended Vietnam Mathematical Olympiad for high school students (among top 250/600 students)	2019

CONFERENCES, SCHOOLS & SEMINARS ATTENDED

The International Conference on Computational Optimization (ICOMP)	UAE, 2025
The AI Autumn School of Computational Optimization (ASCOMP)	UAE, 2025
Efficient Machine Learning Seminar at MBZUAI	UAE, 2025-present

SKILLS

Programming: Python, Java, C, C++, HTML/CSS, JavaScript, MySQL.
Technologies: PyTorch, Scikit-learn, Linux, Docker, Hadoop, Spark, Laravel.
Additional: Microsoft Office, LaTeX, Git.
Language: English (with TOEIC LR 855, IELTS 7.0), Vietnamese (native).

REFERENCES

Dr. Samuel Horvath, Assistant Professor at MBZUAI (UAE):		(samuel.horvath@mbzuai.ac.ae)
Dr. Praneeth Vepakomma, Assistant Professor at MBZUAI & Visiting Prof. at MIT:		(vepakom@mit.edu)
Dr. Ha Quang Thuy, Associate Professor & Former Vice Rector at VNU-UET (Vietnam):		(thuyhq@vnu.edu.vn)
Dr. Nguyen Van Quang, Researcher at RIKEN AIP (Japan):		(quang.nguyen.jz@riken.jp)