# Cuong Pham

*(or Phạm Anh Cường)*

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My research interests focus on **Theory of AI** (especially about **Mathematics for Machine Learning/Deep Learning** such as **Optimization**), based on the motivation to analyze the way Machine Learning and Deep Learning models work from my experience as an AI Engineer/Data Scientist and also from my ten years as a Mathematics competitor. I also share an interest in the **Applications of AI**.

## Education

08/2024–present **MSc in Machine Learning**, *Mohamed bin Zayed University of Artificial Intelligence*, UAE
- Supervised by Dr. Samuel Horváth (primary) and Dr. Nils Lukas (co-supervisor).
- Studying Optimization for Machine Learning, also a bit of Federated Optimization.

08/2019–06/2023 **BSc in Information Technology (Honors)**, *VNU University of Engineering and Technology*, Vietnam
- Graduated with High Distinction (GPA 3.71/4.0 or 8.77/10 - top 5% of CS department) [*Transcript*].
- Thesis: "Building a Vietnamese image captioning dataset and developing a visual-text transformation model for generating image captions" (in Vietnamese) (9.5/10).
- Supervised by Assoc. Prof. Quang-Thuy Ha, Dr. Van-Quang Nguyen (co-sup from RIKEN AIP), MSc. Thi-Hong Vuong (co-sup).

08/2016–05/2019 **High school diploma, Specialized in Mathematics**, *Phan Boi Chau High School for the Gifted*, Vietnam
- Attended Vietnam Mathematical Olympiad (VMO) for high school students (2019).

## Experience

### Research Experience

10/2024–Present **Graduate Research Assistant**, *Mohamed bin Zayed University of Artificial Intelligence*, UAE
- Participating in a project about Optimizing SGD using the adaptive stepsize.

09/2021–09/2023 **Student Research Intern**, *DSKT Laboratory at VNU-UET*, Hanoi, Vietnam
- Studied about Multi-view Time Series Forecasting.
- Project: Continual Learning in Natural Language Processing. This project applied a prototype augmentation mechanism to consistent representation learning to reduce saving data for the next phase of continual learning but still alleviate the forgetting problem [*Paper*].
- Thesis Project: Image Captioning in Computer Vision. This project created a new image-caption dataset in Vietnamese and evaluated it with the best-performance Image Captioning models for English at that time [*Paper*].

### Industrial Experience

10/2023–07/2024 **Data Scientist**, *Viettel Networks*, Hanoi, Vietnam
- Researching and applying Computer Vision (image processing, segmentation, classification) in telecommunication.
- Solving big data problems (using Machine Learning with GPUs) for optimizing and automating with large-scale data, from 100M to 1B records (in telecommunication).

05/2022–08/2023 **R&D Engineer**, *Giaohangtietkiem JSC*, Hanoi, Vietnam
- Researched and developed a mail spam filtering based on Deep Learning methods, achieving the f1-score of 90% after training with 50k emails, it was then deployed to the company's internal email system.
- Learning about chatbot architecture.
- MasterDev Season 4 Internship Program in Research and Development domain - Training about Probability & Statistics, Natural Language Processing, some Big Data frameworks such as Hadoop and Spark (05/2022 - 08/2022).

## Honors and Awards

2024 Fully-funded Master's scholarship at MBZUAI

2021–2023 Third Prizes (x3) in Linear Algebra (for rank 4-6), UET Mathematical Olympiad

2022 Yamada Scholarship

2021 Excellent Scholarship for top highest GPA from VNU-UET

## Skills

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

## Undergraduate Research Papers

[Preprint] **Anh-Cuong Pham**, Van-Quang Nguyen, Thi-Hong Vuong, Quang-Thuy Ha, "KTVIC: A Vietnamese Image Captioning Dataset on the Life Domain." arXiv preprint arXiv:2401.08100.

[RIVF 2022] Quynh-Trang Pham Thi, **Anh-Cuong Pham,** Ngoc-Huyen Ngo and Duc-Trong Le, "Memory-Based Method using Prototype Augmentation for Continual Relation Extraction," 2022 RIVF International Conference on Computing and Communication Technologies (RIVF), Ho Chi Minh City, Vietnam, 2022.

## References

1 **Dr. Samuel Horvath, Assistant Professor at MBZUAI (UAE)**
samuel.horvath@mbzuai.ac.ae Website

2 **Dr. Nguyen Van Quang, Researcher at RIKEN AIP (Japan)**
quang@vision.is.tohoku.ac.jp Google Scholar

3 **Dr. Ha Quang Thuy, Associate Professor at VNU-UET (Vietnam)**
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