

# (Thien-)Trang Nguyen(-Vu)

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## EDUCATION

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### Bachelor of Data Science and Artificial Intelligence

Hanoi University of Science and Technology (HUST)

2019 - 2023

GPA: 3.89/4.0

- Ranked 1st in Program.

## PUBLICATIONS AND SUBMISSIONS

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### Mixture of Experts Meets Prefix Tuning in Continual Learning

Minh Nguyen, Huy Nguyen\*, An Nguyen\*, **Trang Nguyen\***, Trang Pham\*, Linh Ngo, Nhat Ho

- Conference on Neural Information Processing Systems (NeurIPS), 2024.
- Related fields: continual learning, mixture of experts.
- View prompt-based continual learning through the lens of mixture of experts to further address the catastrophic forgetting phenomenon.

### NeuroMax: Enhancing Neural Topic Modeling via Maximizing Mutual Information and Group Topic Regularization

Duy-Tung Pham\*, **Trang Nguyen\***, Tung Nguyen\*, Linh Ngo Van, Duc Anh Nguyen, Thien Huu Nguyen

- Findings of Conference on Empirical Methods in Natural Language Processing (EMNLP), 2024.
- Related fields: topic model, optimal transport.
- Propose NeuroMax, which maximizes mutual information between neural topic model representations and pretrained language models, while using optimal transport to learn topic relationships.

### Backdoor Attack in Prompt-based Continual Learning

**Trang Nguyen**, Anh Tran, Nhat Ho

- Under review.
- Related fields: backdoor attack, continual learning.
- Introduce a transferable, resilient, and authentic targeted backdoor attack framework for prompt-based continual learning.

### Statistical Advantages of Perturbing Cosine Router in Sparse Mixture of Experts

Huy Nguyen, Pedram Akbarian\*, Trang Pham\*, **Trang Nguyen\***, Nhat Ho

- Under review.
- Related fields: mixture of experts, domain generalization.
- Explore the effectiveness of adding perturbation to cosine router in mixture of experts.

### Fast Approximation of the Generalized Sliced-Wasserstein Distance

Dung Le\*, Huy Nguyen\*, Khai Nguyen\*, **Trang Nguyen\***, Nhat Ho

- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2024.
- Related fields: optimal transport, sliced-Wasserstein distance, generative models.
- Propose fast approximations of the generalized sliced-Wasserstein distance to address the computational complexity associated with the Monte Carlo method, which necessitates the computation of a large number of random projections.

## Continual Variational Dropout: A View of Auxiliary Local Variables in Continual Learning

Trang Nguyen\*, Nam Le Hai\*, Linh Ngo Van, Thien Huu Nguyen, Khoat Than

- Machine Learning journal.
- Related fields: continual learning, variational dropout.
- Introduce a novel method that continually applies variational dropout (CVD) to create auxiliary local variables, thus improving regularization/prior-based methods in continual learning.
- Justify the effectiveness and flexibility of the proposal on various baseline methods, priors and posteriors, and architectures, including both Deterministic Neural Networks and Bayesian Neural Networks.

## On Cross-Layer Alignment for Model Fusion of Heterogeneous Neural Networks

Dang Nguyen, **Trang Nguyen**, Khai Nguyen, Dinh Phung, Hung Bui, Nhat Ho

- Top 3% IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2023.
- Related fields: model fusion.
- Propose a novel model fusion framework to fuse neural networks with different numbers of layers (heterogeneous neural networks) via cross-layer alignment.

## Adaptive Prompting for Continual Relation Extraction: A Within-Task Variance Perspective

Minh Le, Tien Ngoc Luu, An Nguyen The, Thanh-Thien Le, **Trang Nguyen**, Thanh-Tung Nguyen Van, Linh Van Ngo, Thien Huu Nguyen

- Under review.
- Related fields: continual learning.
- We improve prompt-based Continual Relation Extraction by incorporating task-specific prompt pool that capture the variations within each task while maximizing cross-task variances.

## EXPERIENCE

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### Research Resident

Machine Learning team, VinAI

Aug 2023 - Present

- Supervisor: [Professor Nhat Ho](#), The University of Texas.
- Main research topics: mixture of experts, backdoor attack, continual learning, optimal transport.
- 4 accepted publications at NeurIPS, EMNLP, ICASSP, 3 submissions.
- Participated in Applied Rotation Projects, including reproducing text-to-image diffusion models with customized data and quantizing these models.

### Data Scientist

Data Department, MB Bank

Mar 2023 - Aug 2023

- Worked on facial recognition project serving the employee attendance system at MB's headquarters.
- Participated in the project to analyze and build a recommendation system for mini-applications within the MB app.

### Research Student

Data Science Laboratory, Hanoi University of Science and Technology

Apr 2021 - Oct 2022

- Main research topics: continual learning.
- Supervisor: [Doctor Ngo Van Linh](#).
- Knowledge gained: foundations of machine learning, deep learning, bayesian neural networks, variational bayesian inference.
- 1 accepted paper at Machine Learning journal.

**Teaching Assistant**

Hanoi University of Science and Technology

Jan 2022 - Jun 2022

- Teaching assistant for Artificial Intelligence course.

**ACHIEVEMENTS**

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**Valedictorian of the Data Science and AI Program**

Sep 2023

Class 2023, HUST

**Top 3% Paper Recognition**

June 2023

ICASSP 2023

**Talent Scholarships for Undergraduates**

Dec 2021

A-class scholarships for students with excellent academic achievements at HUST

**LANGUAGES**

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**Vietnamese**

Native

**English**

IELTS 8.0, graduated from Foreign Language Specialized School (High School)

**PROFESSIONAL SERVICES**

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Reviewer at AISTATS 2024, AISTATS 2025.