Viet Nguyen

+84.971.161.827 | nguyenhoangviet.hsgs@gmail.com | Viet Nguyen | github.com/hsgsstudent

Summary

My research lies at the intersection of **statistics** and **machine learning**, where I seek to understand the behavior of machine learning models from a **rigorous theoretical perspective**. My recent work focuses on parameter convergence rates in Mixture-of-Experts models. I am also interested in quantum computing, especially quantum machine learning. My long-term goal is to develop statistical analysis that enhance the reliability and interpretability of machine learning systems across both classical and quantum computing platforms.

Education

Hanoi University of Science and Technology (HUST) — Hanoi, Vietnam
BSc in Computer Science (Talented Program) — CPA: 3.9/4.0, Top 1% of the cohort — *2022 – 2026*

High School for Gifted Students, Hanoi University of Science (HUS) — Hanoi, Vietnam
High School Diploma (Specialized in Mathematics) — *2019 – 2022*

Experience

AI Research Intern — Oct 2026 – Present
Vinsmart Future – Green SM (R&D Optimization Group) — *Hanoi, Vietnam*

- Research topic: Dynamic Driver Incentive
- Develop a stochastic model to optimize driver incentive policies and predict driver behavior

Independent Researcher — Oct 2025 – Present
Statistical Machine Learning Group (remote) — *Hanoi, Vietnam*

- Supervisor: Assoc Prof. Nhat Ho, The University of Texas at Austin
- Research topic: Parameter estimation rate in Mixture-of-Experts models
- Analyze parameter estimation rate in sigmoid-gating multinomial logistic MoE and Gated Attention mechanism
- 1 accepted publication at NeurIPS 2026, with 1 submission currently under review at AISTAT 2027

Quantum Machine Learning Group (self-directed research) — *Hanoi, Vietnam*

- Collaborator: Dr. Hoang Ta, Hanoi University of Science and Technology
- Research topic: Machine Learning for Quantum Computing, Quantum Neural Networks
- Developed a novel deep learning architecture that outperformed existing baselines in quantum error correction
- Established rigorous characterizations of conservation laws in parameterized quantum circuits under gradient flow
- 1 accepted publication at IEEE ISIT 2026, with 1 submission currently under review at ICLR 2027

Undergraduate Research Assistant — Jan 2024 – Sep 2025
Hanoi University of Science and Technology — *Hanoi, Vietnam*

- Supervisor: Dr. Trinh Chien, Hanoi University of Science and Technology
- Research topic: Evolutiontary Optimization, Wireless Communication, Quantum Annealing
- Introduced novel evolutionary algorithm to optimize the communication channel estimation problem
- Introduce novel algorithm leveraging D-Wave quantum computer to solve multi-objective optimization problems
- 3 accepted publications at IEEE TVT, IEEE TQE, IEEE OJ-COMS

Conference Publications

A Statistical Theory of Gated Attention through the Lens of Hierarchical Mixture of Experts
Viet Nguyen*, Tuan Minh Pham*, Thinh Cao*, Huy Nguyen, Nhat Ho**, Alessandro Rinaldo**
Advances in NeurIPS 2026

A Mixture of Experts Vision Transformer for High-Fidelity Surface Code Decoding
Viet Nguyen, Manh Hung Nguyen, Hoang Ta, Van Khu Vu, Yeow Meng Chee
IEEE International Symposium on Information Theory (ISIT) 2026

Journal Publications

Quantum Annealing for Resource Allocation in Next-Generation Wireless Communication Networks: A QUBO Modeling Guide

Nguyen Xuan Tung, Le Tung Giang, Mai Dinh Cong, Pham Dang Anh Duc, **Viet Nguyen**, Trinh Van Chien
IEEE Open Journal of the Communications Society, 2026

Advanced Quantum Annealing for the Bi-Objective Traveling Thief Problem: An ε-Constraint-Based Approach

Viet Nguyen, Nguyen Xuan Tung, Trinh Van Chien, Won-joo Hwang
IEEE Transactions on Quantum Engineering, 2026

Improved Differential Evolution for Enhancing the Aggregated Channel Estimation of RIS-Aided Cell-Free Massive MIMO

Trinh Van Chien, **Viet Nguyen**, Symeon Chatzinotas, Lajos Hanzo
IEEE Transactions on Vehicular Technology, 2025

Extending network lifespan and securing effective barrier coverage in 3D underwater wireless sensor networks

Nguyen Thi My Binh, Le Duc Anh Vu, **Viet Nguyen**, Huynh Thi Thanh Binh, Ho Viet Duc Luong
Cluster Computing, 2026

Preprints

Rethinking Multinomial Logistic Mixture of Experts with Sigmoid Gating Function

Tuan Minh Pham*, Thinh Cao*, **Viet Nguyen***, Huy Nguyen, Nhat Ho**, Alessandro Rinaldo**
Under Review

Achievement

Vietnam Math Competition for University student 2025
The most prestigious math competition for university students in Vietnam (First Prize – ranked 8th)

Vietnam Math Competition for University student 2023
The most prestigious math competition for university students in Vietnam (First Prize – ranked 4th)

Vietnam Mathematical Olympiad 2020
The most prestigious math competition for high school students in Vietnam (Second Prize – ranked 13th)

Professional Services

Reviewer at

- Transactions on Machine Learning Research (TMLR)

Language

Vietnam: Native
English: Full professional proficiency, IELTS 7.0

References

Prof. Nhat Ho
Associate Professor, The University of Texas at Austin

Dr. Trinh Chien
Assistant Professor, Hanoi University of Science and Technology

Dr. Hoang Ta
Assistant Professor, Hanoi University of Science and Technology