

## Research Interests

Present My research focuses on enhancing the *performance*, *efficiency*, and *robustness* of machine learning models and quantify the *uncertainty* in the predictions that these models produce by using two core approaches: (1) **optimization methods** (momentum and adaptive optimizers); (2) **statistical methods** (conformal prediction, bayesian and probabilistic).

## Education

- 2019 - 2023 **Hanoi University of Science and Technology (HUST)**, *Hanoi, Vietnam*.  
◦ B.Sc, Major in Computer Science (Honors Program), CPA: 3.87 / 4.0 (Class rank: 3/35).  
◦ Thesis: Continuous Neural Ordinary Differential Equations [[pdf](#)] (**Best Thesis Presentation Award**).  
Supervised by [Dr. Linh V. Ngo](#).
- 2016 - 2019 **Le Quy Don High School for Gifted Students, Quang Tri Province, Quang Tri, Vietnam**.  
Major in Mathematics, CPA: 9.1 / 10.0 (Class rank: 1/30).

## Experience

- Nov 2021 - **AI Research Resident**, FPT SOFTWARE AI CENTER, [ai.fpt-software.com](https://ai.fpt-software.com).  
Present ◦ Advisors: [Prof. Tan M. Nguyen](#) & [Dr. Thieu N. Vo](#).  
◦ Research topics: conformal prediction and calibration, deep implicit models, graph neural networks.
- Apr 2021 - **Undergraduate Research Student**, DATA SCIENCE LABORATORY, [ds.soict.hust.edu.vn](https://ds.soict.hust.edu.vn).  
Nov 2021 ◦ Advisors: [Dr. Linh V. Ngo](#) & [Prof. Khoat Q. Than](#).  
◦ Research topics: continual learning, probabilistic graphical models, variational inference.
- Jul 2021 - **Data Analyst Intern**, VINBIGDATA, [vinbigdata.com](https://vinbigdata.com).  
Sep 2021 Utilized machine learning methods to generate detailed reports examining the gene expression changes observed in individuals post-vaccination.
- Apr 2021 - **Viettel Digital Talent**, VIETTEL DIGITAL, [digital.viettel.vn](https://digital.viettel.vn).  
Jul 2021 ◦ Completed introductory courses covering deep learning, computer vision, natural language processing, and big data.  
◦ Participated in a Kaggle competition and achieved a ranking of 108 out of 4410 on the final private leaderboard [[contest](#), [solution](#)].

## Publications

- 2022 **Improving Neural Ordinary Differential Equations with Nesterov's Accelerated Gradient Method**.  
Nghia H. Nguyen\*, Tan M. Nguyen\*, **Huyen K. Vo**, Stanley J. Osher, Thieu N. Vo (**NeurIPS**: Conference on Neural Information Processing Systems, 2022) [[pdf](#)], \* indicates co-first authors.
- 2022 **Development of Vietnamese Text-To-Speech for VLSP Challenge 2021**.  
Le Minh Nguyen, Do Quoc An, Vu Quoc Viet, **Vo Thuc Khanh Huyen** (**VNU Journal of Science: Computer Science and Communication Engineering**, 2022)[[pdf](#)].

## Submissions

- 2023 **Continuous Neural Ordinary Differential Equations**.  
Nghia H. Nguyen\*, **Huyen K. Vo**\*, Long M. Bui\*, Tan M. Nguyen, Stanley J. Osher, Thieu N. Vo (In preparation).

## National/International Prize

- 2019 **Vietnam Mathematics Olympiad (VMO)**.  
◦ The annual national mathematics competition for high school students.  
◦ Third prize (2019).
- 2017 **Singapore Mathematics Olympiad (SMO)**.  
◦ Silver medal (2017).
- 2019 - 2021 **Hanoi University of Science and Technology Excellent Scholarship**.  
Scholarship awarded to top-performing students who exhibit impressive GPAs and training achievements.
- 2017 - 2019 **Vietnam Institute for Advanced Study in Mathematics (VIASM) Scholarship**.  
Scholarship associated with the National Mathematics Development Program.

## Achievements

- 2023 **Second Place in FPT Software AI Center Hackathon**, *Building LLM applications*.
- 2022 **Second Place in UET Hackathon**, *Track: Data Science*, [[contest](#), [solution](#)].
- 2021 **First Place in the shared task of Text To Speech, VLSP 2021**, *The 8th International Workshop on Vietnamese Language and Speech Processing*, [[solution](#)].
- 2021 **Impressive Prize, Top 7 Group A in FPT Edu Hackathon**, *Image Detection, Recognition, and Classification*.

## Teaching Experience

- Oct 2022 - **Machine Learning Teaching Assistant**, MINDX TECHNOLOGY SCHOOL, [mindx.edu.vn](#).
  - Present
    - Helped develop curriculum for over 50 students.
    - Supported coding, technical issues, and graded student assignments.
    - Courses: machine learning and data mining (foundational algorithms, machine learning lifecycle involves data collection, preprocessing, feature engineering, model building, evaluation, and deployment).
- Oct 2019 - **Mathematics Teaching Assistant**, HEXAGON OF MATHS AND SCIENCE, [hexagon.edu.vn](#).
- Mar 2020 Taught mathematics for students who attend Singapore University Entrance Exam (UEE).

## Extracurricular Activities

- 2023 **Vietnam Summer School of Science (VSSS) '10**, *Participant*.
- 2022 **Pre-PhD Summer School by VinUni-Illinois Smart Health Center, VinUniversity**, *Participant*.
- 2018 **Projects in Mathematics and Applications (PiMA)**, *Participant*.  
PiMA brings to highschoolers an chance to learn advanced mathematics concepts and their applications in machine learning.
- 2017 **Math and Science Summer Program (MaSSP)**, *Participant*.  
MaSSP brings to higschoolers an opportunity to explore applications of mathematics and science.
- Nov 2019 - **FPT Center for Young Talents (FYT)**, *Member*.
- Nov 2021 FYT is a special educational organization with the goal of discovering and connecting young talents across the country.
- May 2020 - **Hanoi Math Modelling**, *Content Team*.
- Jan 2021 Produced educational content for both math modeling training and facebook posts.
- Jul 2020 - **Women Who Code, Gen 2**.
- Oct 2020 Women Who Code helps women, especially those new to tech get into this field by offering different tech courses, from basic programming to web development and artificial intelligence.

## Skills

- Languages Python, R, Java, C/C++, SQL.
- Frameworks PyTorch, Tensorflow, Keras, Scikit-learn.
- Big Data AWS, Spark, Hadoop, Kafka, NoSQL.
- DevOps Linux, Docker.
- Web HTML5, CSS3, JavaScript, jQuery, Ajax, Java (Servlet, Spring MVC, Spring Boot).
- Certificates Machine Learning DevOps Engineer Nanodegree program (Udacity), Data Engineering Nanodegree program (Udacity), Data Streaming (Udacity).

## Languages

- Vietnamese Native.
- English IELTS Overall 7.5: Reading 8.5, Listening 8.0, Writing 6.5, Speaking 6.5.
- Others Japanese, Korean.

## References

- Professor **Tan M. Nguyen**, NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE.  
tanmn@nus.edu.sg [[website](#), [scholar](#)].
- Lecturer **Thieu N. Vo**, TON DUC THANG UNIVERSITY, HO CHI MINH CITY, VIETNAM.  
vongochthieu@tdtu.edu.vn [[website](#), [scholar](#)].
- Professor **Khoat Q. Than**, HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY, VIETNAM.  
khoattq@soict.hust.edu.vn [[website](#), [scholar](#)].
- Lecturer **Linh V. Ngo**, HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY, VIETNAM.  
linhvn@soict.hust.edu.vn [[website](#), [scholar](#)].