Huyen Thuc Khanh Vo

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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 - Present **AI Research Resident**, FPT SOFTWARE AI CENTER, ai.fpt-software.com.
- Advisors: Prof. Tan M. Nguyen & Dr. Thieu N. Vo.
- Research topics: conformal prediction and calibration, deep implicit models, graph neural networks.

Apr 2021 - Nov 2021 **Undergraduate Research Student**, DATA SCIENCE LABORATORY, ds.soict.hust.edu.vn.
- Advisors: Dr. Linh V. Ngo & Prof. Khoat Q. Than.
- Research topics: continual learning, probabilistic graphical models, variational inference.

Jul 2021 - Sep 2021 **Data Analyst Intern**, VINBIGDATA, vinbigdata.com.
Utilized machine learning methods to generate detailed reports examining the gene expression changes observed in individuals post-vaccination.

Apr 2021 - Jul 2021 **Viettel Digital Talent**, VIETTEL DIGITAL, digital.viettel.vn.
- 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**.
Huyen K. Vo*, Nghia H. Nguyen*, 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 - Present	**Machine Learning Teaching Assistant**, MindX Technology School, mindx.edu.vn.
	○ 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 - Mar 2020	**Mathematics Teaching Assistant**, Hexagon of Maths and Science, hexagon.edu.vn. 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.*
2021 - 2022	**Student Association's Educational Support Department, HUST**, *Member.*
2021	**Le QinsiDers**, *Member.*
2020	**Hanoi Math Modelling**, *Content Team.* Produced educational content for both math modeling training and facebook posts.
2020	**Women Who Code, Gen 2**, *Member.* 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. vongocthieu@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. linhnv@soict.hust.edu.vn [website, scholar].