Tuan Anh Nguyen

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"The best way to predict the future is to invent it"

Education

University of Information Technology - VNU-HCM, *Ho Chi Minh City, Vietnam* 2021 - 2025

- Major: B.S. in Computer Science (Honor Program)
- GPA: 3.42/4.0 (or 8.3/10)
- Relevant coursework: Machine Learning, Artificial Intelligence, Computer Vision, Information Retrieval, Neural Network and Genetic Algorithms

Hoang Le Kha High School For The Gifted, *Tay Ninh, Vietnam* 2019 - 2021

- Major: Mathematics

Research Interests

My research is driven by a deep interest in the theoretical foundations of Machine Learning and Optimization. I am also exploring related areas, including

- Statistical Learning Theory
- Theory and applications of Optimal Transport
- Theory of Evolutionary Computation

Technical Skills

Programming Languages: Python, C++, SQL, Matlab

Frameworks: PyTorch, Scikit-learn, TensorFlow

Generative AI Frameworks: LangChain, LangGraph

Supporting Tools: Git, LaTeX, Microsoft Office

Operating Systems: Windows, Linux

Research Experience

Evolutionary Learning and Optimization (ELO) @ UIT, *Ho Chi Minh City, Vietnam* 2024 - Present
Research Student

- Research topics: Mixed-Integer Optimization and Machine Learning
- Investigated Evolution Strategies (CMA-ES, Natural Evolution Strategies, etc.), their convergence behavior on specialized problem classes, and techniques to reduce computational cost
- Introduced eMI-BBO for solving high-dimensional mixed-integer problems
- Studied flat minimizers (e.g., Sharpness-Aware Minimization) and statistical learning frameworks (e.g., PAC-Bayes) for generalization guarantees

Publications

Tuan Anh Nguyen and Ngoc Hoang Luong. **Toward Efficient Mixed-Integer Black-Box Optimization via Evolution Strategies with Plateau Handling Techniques**. In *Proceedings of the Genetic and Evolutionary Computation Conference (**GECCO 2025**)* 2025
REF |

- An initial effort to extend the study of mixed-integer black-box optimization to high dimensions
- The proposal has competitive performance with state-of-the-art algorithms

Projects

(Thesis) Towards High-Dimensional Mixed-Integer Black-Box Optimization 2025

PDF |

- Optimizing the mixed-integer problems in black-box and high-dimensional settings
- Utilizing Evolution Strategies and advanced plateau handling techniques

(Project at Grab Tech Bootcamp) GRAVEL 2025

- Building a recommendation system for traveling based on textual prompts
- Develop a RAG system with semantic search using LangChain and integrate core APIs

Crowd Counting 2023

PDF |

- Estimating the number of people or objects in a given scene or image
- Leveraging Neural Networks, Unbalanced Optimal Transport, and DL techniques

Sketch-based Image Retrieval System 2023

PDF |

- Retrieve relevant images in collection based on the user's drawn sketches
- Utilizing techniques from Information Retrieval and the CLIP model

Scholarship

Scientific Research Fund 2024 - UIT

- A university-sponsored fund supporting outstanding scientific research

Languages

Vietnamese | **Mother tongue**

English | **TOEIC 730**

Others

UIT Collegiate Programming Contest 2023 (UCPC2023) | **Problem Setter**

ICPC Vietnam Northern Provincial Programming Contest 2022 | **Rank 51/448**

Pi Journal - Vietnam Mathematicial Society 2020 | **Rank 7/18**