TUAN ANH NGUYEN

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EDUCATION

University of Information Technology, Ho Chi Minh City, Vietnam 2021-2025
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
High school student specializing in 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), 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

1. **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**).*

PROJECTS

GRAVEL 2025
Project at Grab Tech Bootcamp

- Building a recommendation system for traveling based on textual prompts
- Develop a RAG system with semantic search using LangChain and integrate core APIs
- Tools used: LangChain, Hugging Face Transformers, MongoDB

Towards High-Dimensional Mixed-Integer Black-Box Optimization 2025
Thesis PDF — Code

- Optimizing the mixed-integer problems in black-box and high-dimensional settings
- Utilizing Evolution Strategies and advanced plateau handling techniques
- Tools used: NumPy, SciPy, Matplotlib

Crowd Counting 2023
Course project PDF — Code

- Estimating the number of people or objects in a given scene or image
- Leveraging Neural Networks, Unbalanced Optimal Transport, and DL techniques
- Tools used: PyTorch, NumPy, Streamlit

Sketch-based Image Retrieval System 2023
Course project PDF — Code

- Retrieve relevant images in collection based on the user's drawn sketches
- Utilizing techniques from Information Retrieval and the CLIP model
- Tools used: PyTorch, NumPy, Streamlit

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