

Pham Cong Hoang

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About

I am an undergraduate student majoring in Data Science and Artificial Intelligence. My research at the Computational Intelligence Optimization Laboratory, conducted under the supervision of Prof. Huynh Thi Thanh Binh, focuses on evolutionary and metaheuristic methods for complex combinatorial optimization problems. At QACI, FPT Corporation, I also develop LLM-based agentic optimization frameworks that integrate MILP solvers with heuristic search methods. My bioinformatics research focuses on computational methods for multi-omics learning, drug response prediction, and protein-ligand modeling, including virtual screening and binding pocket prediction.

Education

Hanoi University of Science and Technology (HUST), B.Sc. of Data Science Aug 2024 – Present

- **GPA:** 3.84/4.00 (Cumulative), 3.94/4.00 (Most Recent Semester)
- **Coursework:** Machine Learning, Deep Learning, Optimization, Computer Science

Le Quy Don High School for the Gifted, Specialized Mathematics Program Aug 2021 – May 2024

- **GPA:** 9.3/10.0
- **Honors & Awards:**
 - 2024 Vietnam National Mathematics Olympiad – 4th Prize
 - 2023 Odón Vallet Scholarship for Academic Excellence
 - 2021 Provincial Science and Engineering Competition – 2nd Prize: Python Student Assistant

Engineering Experience

AI Engineering Intern, Viettel Digital Talent 2026 Program, Viettel Group Apr 2026 – Jun 2026

- Selected for Data Science & AI track, achieving **8.67/10** on the major test and **144/160** on the IQ test.

AI Engineer, Quantum AI & Cyber Security Institute (QACI), FPT Corporation Mar 2026 – Sep 2026

- Selected for FPT FutureTech Talents 2026 Program as a Top 3 candidate among over 1,000 applicants
- Investigate LLM-based agentic optimization frameworks that formulate complex decision-making problems, invoke MILP solvers for exact reasoning, and integrate heuristic/metaheuristic search for scalable solution refinement.

Academic Experience

Undergraduate Teaching Assistant, SoICT, HUST Sep 2026 – Present

- Support teaching for Introduction to Programming and Computer Networks courses, serving over 500 students.

Research Assistant, Computational Intelligence Optimization (CIO) Laboratory, International Research Center for AI (BKAI), SoICT, HUST Aug 2024 – Present

- Supervisors: Prof. [Huynh Thi Thanh Binh](#), MSc. [Ho Viet Duc Luong](#)
- Research evolutionary, metaheuristic, and ML/DL methods for routing, wireless sensor networks, and related combinatorial optimization applications.

Publications

Toward a Culture-Aware Vietnamese Mental Health Support Chatbot with Large Language Models

Nguyen Tran Minh Nhat, **Pham Cong Hoang**, Tran Phong Quan, Tran Le Dung, Long D. Nguyen, Nguyen Duong Hung, and Ho Viet Duc Luong.

Proceedings of The 14th International Symposium on Information and Communications Technology, 2025. (Accepted)

Multi-objective Cluster Head Selection in Underwater Wireless Sensor Networks: An Influence Maximization Perspective with Adaptive Evolutionary Optimization

Pham Cong Hoang, Ho Viet Duc Luong, and Nguyen Minh Quan.

Cluster Computing (IF 5.5). (Submitted)

Interpretable Multi-Omics Learning with Cell-Conditioned Motif Graphs for Drug Response Prediction

Long D. Nguyen, Luong Ho, Nhat M. T. Nguyen, **Hoang C. Pham**, Paul Teesdale–Spittle, Binh P. Nguyen.

Applied Soft Computing Journal (Q1, IF 6.6). (Second-round revision submitted)

Projects

Fundamental Concepts and Methods in Biomedical Image Registration

- Led a biomedical image registration project comparing Diffeomorphic Demons, PSO, and compact VoxelMorph and TransMorph models in a reproducible pipeline.
- Benchmarked four methods on 85 OASIS-1 brain MRI test pairs using MSE, NCC, Dice, runtime, and Jacobian-based deformation regularity.

Honors & Awards

Academic Excellence Scholarship – HUST

Apr 2026

Awarded for outstanding academic performance as a top 5% student among 120 Data Science students

First Prize (Champion) – Hanoi Mathematical Modeling Competition

Aug 2025

Topic: Nurse Scheduling Problem and SIR-based infectious disease modeling

First Prize (Champion) – Hanoi Mathematical Modeling Competition

Aug 2024

Topic: Markowitz portfolio optimization and risk warning modeling for the 2023 Credit Suisse collapse

Runner-up – Competition Track, The 14th International Symposium on ICT

Dec 2025

Topic: Maximizing benefit in Supplier Consumer Transportation with lower/upper-bound capacity constraints

Skills

Programming: Python, C++, C, Java

Machine Learning & AI: PyTorch, Scikit-learn, Deep Learning, LLM Agents

Optimization: MILP, Evolutionary Algorithms, Metaheuristics, CPLEX, Gurobi, OR-Tools

Data & Tools: NumPy, Pandas, Git, Linux, LaTeX