Quang-Anh Pham

phamquanganh32@gmail.com
qa.pham.2025@phdcs.smu.edu.sg

Education

PhD in Computer Science 2025 – 2029 (*expected*)
Singapore Management University Singapore
- Supervisors: Prof. Akshat Kumar and Prof. Tien Mai

Bachelor of Computer Science (Honors Program) 2017 – 2021
University of Engineering and Technology - Vietnam National University, Hanoi Vietnam
- GPA: 3.6/4.0 (First-Class Honours)

Research Interests

Artificial Intelligence, Imitation Learning, (Deep) Reinforcement Learning, Heuristic Search, Operations Research.

Work Experience

Research Engineer December 2023 – June 2025
SMU School of Computing and Information Systems Singapore
- Study Safe Reinforcement Learning and Imitation Learning
- Build Maritime Traffic Management Simulator

Research Engineer November 2022 – October 2023
Samsung SDS R&D Center Vietnam
- Study Job Scheduling (Dispatching) Problems with HPC Applications in Cloud Computing Environments
- Optimize trucking plan for customers based on the Cello Square Logistics platform data.

Research Assistant April 2020 – November 2022
ORLab Vietnam
- Work in some industrial projects on healthcare and logistics
- Study variants of the Vehicle Routing Problem.

Research Intern February 2018 – March 2020
ORLab Vietnam
- Learn Combinatorial Optimization, Operations Research, Metaheuristic
- Attend some optimization challenges.

Conference Papers

[1]: **IOSTOM: Offline Imitation Learning from Observations via State Transition Occupancy Matching**
Quang Anh Pham, Janaka Chathuranga Brahmanage, Tien Anh Mai, Akshat Kumar
Under review at NeurIPS 2025

[2]: **ShipNaviSim: Data-Driven Simulation for Real-World Maritime Navigation**
Quang Anh Pham, Janaka Chathuranga Brahmanage, Akshat Kumar
International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2025
Rank A* - Acceptance rate ≈ 24.5%.

[3] **An efficient hybrid genetic algorithm for the quadratic traveling salesman problem**.
Quang Anh Pham, Hoong Chuin Lau, Minh Hoàng Hà, Lam Vu.
International Conference on Automated Planning and Scheduling (ICAPS), pages 341-351, 2023.
Rank A* - Acceptance rate ≈ 30%.

[4] **A hybrid genetic algorithm for the vehicle routing problem with roaming delivery locations**.
Quang Anh Pham, Minh Hoàng Hà, Duy Manh Vu, Huy Hoang Nguyen.
International Conference on Automated Planning and Scheduling (ICAPS), pages 297-306, 2022.
Rank A* - Acceptance rate ≈ 30%.

JOURNAL PAPERS

[1] **The set team orienteering problem**.
Tat Dat Ngyen, Rafael Martinelli, Quang Anh Pham, Minh Hoàng Hà.
European Journal of Operational Research, 2025.

[2] **The bike routing problem with energy constraints**.
Yannis Ancelea, Quang Anh Pham, Minh Hoàng Hà, Dante Ben Matellinia, Trung Thanh Nguyen.
International Journal of Systems Science: Operations & Logistics, 2024.

PROJECTS

Auto Trucking Plan Optimizer June 2023–October 2023

Samsung SDS

- **Scope**: The optimizer is required to automate the planning process for delivering over a thousand requests daily. The generated plan needs to satisfy all customer constraints, such as capacity and time windows, while matching or even outperforming the manual plan.
- Develop a data pipeline for processing, and storing the map data of customer stores. It helps to detect anomalies in the input data e.g. wrong coordinates. A graph transformation method is proposed to integrate some special customer requirements into ORTools to automatically generate the routing plan.
- Experiments on historical as well as real-time data over several months show that our approach surpasses the manual one in terms of cost metrics. Additionally, planning times have been reduced from hours to minutes.

Cloud Platform GPU Job Scheduler December 2022–February 2023

Samsung SDS

- **Scope**: The job scheduler helps distribute limited resources (GPUs) when there are multiple distributed-training tasks requested in a computing cluster. Various metrics like fairness, or GPU consumption rate are taken into account.
- Develop and compare constraint programming and heuristic methods for efficiently assigning tasks selected by a Deep Reinforcement Learning agent into available GPUs.
- On the realistic benchmarks, our team approach outperforms traditional methods (First In First Out, Bin Packing, etc) and has a competitive performance with a Deep Multi-agent Reinforcement Learning algorithm proposed by another team.

Smart Logistics System January 2021–October 2021

ORLab

- **Scope**: Developing a module that automatically creates a profitable plan for transporting containers based on the information obtained from the logistics system of the customer.
- Communicate with both dev and BA teams from the customer company to define the problem as well as design the solution
- Research, implement and test some efficient algorithms (Genetic Algorithm and Large Neighborhood Search) which are then packaged into APIs that the customer system can access. The created solution **plays an important role in some later successful POCs.**

O-HOS, A Hospital Staff Management System September 2019–December 2020

ORLab

- **Scope:** The system aims to manage the information and job calendar of hundreds of employees at some departments of a large hospital in Hanoi.
- Work as a Business Analyst to collect requirements for a department and co-design DB with the dev team.
- Develop a Mixed Integer Programming approach to deal with the nurse scheduling problem which results in **reducing the manual planning time from hours to minutes.**

VeRoLog Solver Challenge 2019 September 2018 – March 2019

ORLab

- Topic: Multi-trip and multi-depot vehicle routing problem with rich constraints
- Supervisor: Dr. Ha Minh Hoang
- Take **4th** rank at the final phase

ROADEF/EURO Challenge 2018 February 2018 – June 2018
ORLab

- Topic: Two-dimensional bin-packing problem with defect constraints
- Supervisors: Dr. Ha Minh Hoang, Dr. Do Duc Dong
- Achieve **6th** rank in the qualification phase

HONORS AND AWARDS

Champion of PROCON Vietnam 2019 December 2019
My team built a Monte Carlo Tree Search algorithm that outperformed other teams in the competition

The Dean's list Fall 2020
Semester GPA above 3.9 at VNU University of Engineering and Technology

Third Prize of National Informatics Contest 2017
National Informatics Contest is a programming contest for high school students in Vietnam.

SKILLS

Languages: Vietnamese (Native), English (IELTS: 7.0)
Programming Languages: C++ , Python, Java
Optimization Softwares: CPLEX, OR-Tools
Deep Learning Frameworks: Pytorch
Others: Pandas, Plotly, Overleaf, Git