

# QUI LOC PHAN

🏠 ENS & Dauphine - PSL

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🌐 Vietnamese

## Education

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### Université PSL & Université Paris-Saclay

Master of Computer Science - Operations Research, **Rank 6th/20 (1st year)**

**2023 – 2025**

Paris, France

### Ho Chi Minh University of Education

Honours Bachelor of Mathematics - Combinatorics, **Rank 1st/300**

**2019 – 2023**

Ho Chi Minh, Vietnam

## Experience

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### ENSTA Paris, IPParis

Research Intern

**May 2024 – Aug 2024**

Paris, France

- Study combinatorial optimization on gate-based quantum computers, construct efficient ansatz for these problems
- Code end-to-end solution dealing with binary polynomial optimization problems, test performance on different templates

### QUACS, INRIA Saclay

Research Student

**Feb 2024 – Apr 2024**

Paris, France

- Study Quantum Fast-Forwarding on Markov Process, applications in decision and graph optimization problems
- Simulate Spatial Search problem on different types of graphs, compare efficiency between quantum and classical scheme

### Vietnam Academy of Science and Technology

Research Scholar

**May 2023 – Aug 2023**

Ha Noi, Vietnam

- Study mathematical foundation of Structural Equation Modeling, focus on statistical optimization and factor analysis
- Construct mathematical structure for model estimation and assessment, discover potential risks in quantitative analysis

### Laboratory of Computer Algebra, HCMUE

Research Intern

**10 months**

Ho Chi Minh, Vietnam

- Study fundamental aspects of combinatorics and abstract algebra, model and address combinatorial problems
- Design or develop, and evaluate algebraic algorithms both in theory and practice mathematically

## Project

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### Quantum Machine Learning

**2024**

- Implement Variational Quantum Eigensolver, evaluate performance with different optimizers and hyperparameters
- Build Variational Quantum Classifier for IBM-birds dataset, optimize quantum circuit on various environments

### Deep Learning in Computer Vision

**2024**

- Build and deepen network with more layers and variational SGDs, reach accuracy 97% from 92% on MNIST dataset
- Build VAE (without and with CNN) and GAN to generate images, evaluate performance with different hyperparameters

### Quantum Combinatorial Optimization

**2023**

- Code end-to-end variant QAOA algorithms for QUBO, test performance with different number of layers and parameters
- Study different heuristic optimizations (COBYLA and Genetic) on cost function and test on various QUBO problems

## Technical Skill

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**Language:** Vietnamese (Native), English (C1), French (currently study B1)

**Programming Language:** Python (1.5 years), C++ (1 year), Matlab (2 years)

**Solver:** CPLEX, Gurobi

## Achievement (from 2019)

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- Excellence scholarships for all school years (ENS + IPParis + HCMUE), with addition 3 yearly national merit awards
- Mathematics: 1 silver medal + 1 bronze medal in national competitions, 2 gold medals in regional competitions
- Informatics: top 3%/2000 in International IBM Challenge, 1 bronze medal in regional competition
- Research: 2 silver medals + best thesis award in university contests, 2 poster presentations at international workshops
- Full travel grants: 1 European summer school, 2 French summer schools

## Reference

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**M1 IPParis:** [Prof. Andrea Simonetto](#) & [Prof. Sourour Elloumi](#) (intern co-supervisors), [Res. Marcella Bonazzoli](#) (lecturer)