Qui Loc PHAN

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Education

Université PSL & Université Paris-Saclay   **2023 − 2025**
*Master of Computer Science, **Top 30% of 1st year***   *Paris, France*

Ho Chi Minh University of Education   **2019 − 2023**
*Honours Bachelor of Mathematics, **Valedictorian***   *Ho Chi Minh, Vietnam*

Experience

Dassault Systèmes   **Mar 2025 − Sep 2025**
Research Intern (Incoming)   *Paris, France*
- Study variational and annealing algorithms on quantum computers for combinatorial optimization and machine learning
- Explore their current challenges and develop these methods, compare them to classical solvers and different hardwares

ENSTA Paris, IPParis   **May 2024 − Aug 2024**
Research Intern   *Paris, France*
- Study how to construct efficient ansatz for variational algorithms to address binary polynomial optimization problems
- Create ansatz for encoding those problems into gate-based quantum computers with minimal number of CNOT gates

QUACS, INRIA Saclay   **Feb 2024 − Apr 2024**
Research Student   *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   **May 2023 − Aug 2023**
Research Scholar   *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   **10 months**
Research Intern   *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

Quantum Machine Learning   **2024**
- Implement Variational Quantum Eigensolver, evaluate performance with different optimizers and hyperparameters
- Build Variational Quantum Classifier for IBM-birds dataset, evaluate on different types of hardware-efficient ansatz

Deep Learning in Computer Vision   **2024**
- Build and deepen network with more layers and variational SGDs, reach accuracy 97% from 92% on MINIST 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 optimizations (Derivative-free and Evolutionary) on cost function and test on various QUBO problems

Technical Skill

Language: Vietnamese (Native), English (C1), French (currently study B1)
Programming Language: Python (2 years), C++ (1 year), Matlab (2 years)
Quantum Frameworks: Qiskit, Cirq   **Solver**: CPLEX, Gurobi

Achievement (from 2019)

- Excellence scholarships from ENS + IPParis + HCMUE, with addition 3 yearly national merit awards
- Full scholarship to European Quantum Technology Summer School 2024, by European Center for Quantum Sciences
- Mathematics: 1 silver medal + 1 bronze medal in national competitions, 2 gold medals in regional competitions
- Informatics: top 3%/2000 in Quantum IBM Challenge, 1 bronze medal in regional competition
- Research: 2 silver medals + best thesis award in university contests, 2 poster presentations at international workshops