Viet PHAM NGOC

@ viphamngoc@gmail.com
+44 7 933 575 846
https://github.com/vietphamngoc
London

Education

PhD. Student in Quantum Computing Oct. 2018 – Aug. 2023
Department of Computing, Imperial College London London, United Kingdom
Supervisor: Dr. Herbert Wiklicky.
Research in quantum machine learning. Submitted, defense date: 06th October 2023.

Quantum Language Design and Implementation 2019 Sept. 2019
University of Verona Verona, Italy
Summer school.
Introduction to Qiskit and Q#.

MSc. in Artificial Intelligence Oct. 2017 – Sept. 2018
Department of Computing, Imperial College London London, United Kingdom
Achieved with Distinctions.
Courses in machine learning, deep learning, and quantum computing.

French 'Diplôme d'Ingénieur' Sept. 2015 – Jun. 2018
CentraleSupélec Gif-sur-Yvette, France
Top-tier 'Grandes Écoles' in Electrical Engineering and Computer Science.
Courses in computer science, quantum mechanics and electrical engineering.

Work Experience

Teaching Assistant Oct. 2018 – Jul. 2023
Department of Computing, Imperial College London London, United Kingdom

- Lead tutorials in Quantum Computing, Models of Computation, Computational Techniques, Probability and Statistics.
- Marked the courseworks for these courses.

Course Leader Jan. 2022 – Mar. 2022
Department of Computing, Imperial College London London, United Kingdom

- Taught the Computational Techniques course to more than 100 undergraduate students in coordination with three other course leaders.
- Wrote the learning materials and tutorials sheets. Gave live lectures over three weeks about linear algebra. In addition wrote and marked the courseworks and exam.
- Organised the tutorials and managed the teaching assistants team of five to ensure coherence and quality throughout the term.

Research Intern May 2021 – Sept. 2021
Riverlane Cambridge, United Kingdom

- Implemented a paper proposing a quantum error correction scheme using machine learning techniques. Showed that the scheme did not perform as claimed.
- Explored the use of a convolutional neural network to perform quantum error correction.

Research Assistant Sept. 2018 – Oct. 2018
Department of Computing, Imperial College London London, United Kingdom

- Continued the work started during the MSc. Individual Project.
- Investigated alternative features extraction techniques to leverage the 3D architecture of the fMRI data.

Freelance Web Developer Sept. 2016 – Oct. 2017

- Met regularly with clients to understand their needs and agree on deliverables.
- Delivered two websites and provided regular support and updates.

PROJECTS

PhD Oct. 2018 – Aug. 2023

Department of Computing, Imperial College London London, United Kingdom

- Designed a quantum circuit composed of simple gates that can approximate Boolean functions.
- Developed and implemented algorithms to train this architecture in different learning frameworks. The algorithms exhibited improved performances over results found in the literature.
- Published in conferences specialised in quantum computing.

Machine Learning from Human Preference | MSc. Individual Project May 2018 – Sept. 2018

Department of Computing, Imperial College London London, United Kingdom

- Collaborated with another student to reconstruct seen images from functional magnetic resonance imaging (fMRI) data.
- Delineated the Visual Cortex from fMRI data using statistical means.
- Designed and implemented feature extraction technique.
- The project ended with promising results with the main color being recovered.

PUBLICATIONS

Exact Learning with Tunable Quantum Neural Networks and a Quantum Example Oracle 2023

V. Pham Ngoc and H. Wiklicky

Quantum Techniques in Machine Learning (QTML) 2023

- Designed a training algorithm for the architecture in the Exact Learning framework.
- The algorithm outperformed the results found in the literature in some cases.

Tunable Quantum Neural Networks in the QPAC-Learning Framework 2022

V. Pham Ngoc, D. Tuckey and H. Wiklicky

Quantum Physics and Logic (QPL) 2022

- Devised an algorithm to train the architecture introduced in the previous paper within the quantum PAC-learning framework.
- The sample complexity for the algorithm was, in some cases, lower than what can be found in the literature.

Tunable Quantum Neural Networks for Boolean Functions 2020

V. Pham Ngoc and H. Wiklicky

Quantum Techniques in Machine Learning (QTML) 2020

- Introduced a quantum circuit made of multi-controlled X gates and showed that it can learn any Boolean function.
- Came up with an initial training algorithm based on a specific superposition of all the possible inputs.

SKILLS

Languages: French (Native), Vietnamese (Native), English (Fluent), Spanish (Conversational), Russian (Basic)

Programming: Python, Qiskit, Tensorflow

Others: LaTex, Git, Docker

EXTRA-CURRICULAR ACTIVITIES

Climbing 2005 – Present

- Sport climbing, bouldering and traditional climbing.
- Part of a funded expedition to sail and climb in the Lofoten islands in July 2023.
- Regularly guiding people and teaching them the best practice in climbing.

Clarinet 2001 – Present

- Final level of music academy.
- Alfred Loewenguth Youth Orchestra from 2009 to 2012.