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EDUCATION

PhD. Student in Quantum Computing

Department of Computing, Imperial College London

Successfully defended on 06 October 2023.

Research in quantum machine learning. Supervised by Dr. Herbert Wiklicky.

Oct. 2018 – Aug. 2023

London, United Kingdom

Quantum Language Design and Implementation 2019

University of Verona

Summer school.

Introduction to Qiskit and Q#.

Sept. 2019

Verona, Italy

MSc. in Artificial Intelligence

Department of Computing, Imperial College London

Achieved with Distinctions.

Courses in machine learning, deep learning, and quantum computing.

Oct. 2017 – Sept. 2018

London, United Kingdom

French 'Diplôme d'Ingénieur'

CentraleSupélec

Top-tier 'Grandes Écoles' in Electrical Engineering and Computer Science.

Courses in computer science, quantum mechanics and electrical engineering.

Sept. 2015 – Jun. 2018

Gif-sur-Yvette, France

WORK EXPERIENCE

Teaching Assistant

Department of Computing, Imperial College London

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

Oct. 2018 – Jul. 2023

London, United Kingdom

Course Leader

Department of Computing, Imperial College London

- 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.

Jan. 2022 – Mar. 2022

London, United Kingdom

Research Intern

Riverlane

- 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.

May 2021 – Sept. 2021

Cambridge, United Kingdom

Research Assistant

Department of Computing, Imperial College London

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

Sept. 2018 – Oct. 2018

London, United Kingdom

Freelance Web Developer

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

Sept. 2016 – Oct. 2017

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.