Po-Wei (George) Huang

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Education

University of Oxford **Oct 2024 - Present**

DPhil in Mathematics (Mathematical Physics)

- Quantum Information and Computation
- Advisor: Prof. Bálint Koczor
- St. Cross College

National University of Singapore **Aug 2020 - Jun 2023**

BComp (Hons) in Computer Science (GPA 4.81/5.00)

- Second major in mathematics
- Dual specialization in algorithms and theory/artificial intelligence
- Dissertation title: *Post-variational quantum neural networks*
- Advisors: Prof. Patrick Rebentrost and Prof. Rahul Jain

Research Experience

Entangled Computing Lab, Centre for Quantum Technologies **May 2023 - Sep 2024**

Research Assistant (PI: Prof. Patrick Rebentrost)

Web IR/NLP Group, National University of Singapore **Apr 2021 - Jul 2022**

Undergraduate Researcher (Advisor: Prof. Min-Yen Kan)

Department of Chemistry, National Cheng Kung University **Sep 2018 - Apr 2019**

Student Researcher (Advisor: Prof. Hong-Ping Lin)

Manuscripts and Publications

[1] P. Ivashkov, **P.-W. Huang**, K. Koor, L. Pira, P. Rebentrost (2024). QKAN: Quantum Kolmogorov-Arnold Networks. *arXiv:2410.04435 [quant-ph]*

[2] B. Y. Gan, **P.-W. Huang**, E. Gil-Fuster, P. Rebentrost (2024). Concept learning of parameterized quantum models from limited measurements. *arXiv:2408.05116 [quant-ph]*

– *Accepted at QTML 2024, AQIS 2024, and IPS 2024 as a regular contributed talk.* –

[3] **P.-W. Huang**, P. Rebentrost (2024). Quantum algorithm for large-scale market equilibrium computation. *arXiv:2405.13788 [quant-ph]*

– *To appear in NeurIPS2024.* –

[4] **P.-W. Huang**, X. Li, K. Koor, P. Rebentrost (2023). Hybrid quantum-classical and quantum-inspired classical algorithms for solving banded circulant linear systems. *arXiv:2309.11451 [quant-ph]*

[5] **P.-W. Huang**, P. Rebentrost (2023). Post-variational quantum neural networks. *arXiv:2307.10560 [quant-ph]*

– *Accepted at QTML 2023 as a regular contributed talk.* –

[6] **P.-W. Huang** (2022). Domain specific augmentations as low cost teachers for large students. In *Proceedings of the First Workshop on Information Extraction from Scientific Publications*, pages 84–90.

[7] **P.-W. Huang**, A. Ramesh Kashyap, Y. Qin, Y. Yang, and M.-Y. Kan (2022). Lightweight contextual logical structure recovery. In *Proceedings of the Third Workshop on Scholarly Document Processing*, pages 37–48.

Other Experiences

Continental Automotive Singapore **May 2022 - Jul 2022**

Software Engineer Intern (Central Engineering Department)

Taiwan Semiconductor Manufacturing Company (TSMC) **Jul 2021 - Sep 2021**

Information Technology Intern (Equipment Edge Computing Team)

Talks

[1] **Post-variational quantum neural networks.** *Contributed talk at QTML 2023.* (Nov 22, 2023)

[2] **Post-variational strategies for quantum machine learning.** *QML Seminar, QAISG.* (Oct 24, 2023)

[3] **Post-variational quantum neural networks.** *CS Seminar, CQT.* (Aug 30, 2023)

[4] **Domain specific augmentations as low cost teachers for large students.** *Contributed talk at WIESP@AACL-IJCNLP 2022.* (Nov 21, 2022)

Teaching

Classical Mechanics **MT24**

Teaching Assistant (Oxford Maths)

Data Structures and Algorithms **Spr21, Sum21, Fall21, Spr22, Sum22, Fall22, Spr23**

Teaching Assistant (NUS Computing)

Achievements and Awards

EPSRC Quantum Technologies DTP CASE Conversion Studentship 2024-2028

Honours Degree with Highest Distinction, NUS 2023

School of Computing Turing Research Programme, NUS 2023

Dean's List, NUS Fall 2020, Spring 2021, Fall 2022

Honour List of Student Tutors, NUS 2022

Academic Services

Reviewer (Journal): Int. J. Quantum Inf, Quantum Mach. Intell.

Reviewer (Conference): QTML 2023, TAMC 2024, TQC 2024

Skills

Spoken Languages: English (full professional proficiency), Mandarin (native)

Programming Languages: C/C++, Java, Python

Machine/Deep Learning: PyTorch, Jax

Quantum Computing: Qiskit, Pennylane