

Victor (Yanfei) Wei

CONTACT INFORMATION

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EDUCATION

McGill University, Montreal

Sep. 2020 – May 2023

B. Sc in Joint Honors Physics and Computer Science

CGPA 3.92/4.00

RESEARCH EXPERIENCE

Institute for Quantum Computing, University of Waterloo

May 2023 – Present

Undergraduate Research Assistant / Group Project Manager

- Supervised by Prof. Christine Muschik, collaborated with Prof. Rainer Blatt's trapped ion group at University of Innsbruck.
- Worked on experimentally relevant variational state reconstruction with randomized measurements.
- Group project manager.

Department of Physics, McGill University

Sep. 2022 – Apr. 2023

Undergraduate Thesis Project

- Supervised by Prof. Christine Muschik (Waterloo), Prof. Pooya Ronagh (Waterloo), and Prof. Bill Coish (McGill).
- Worked on neural network quantum state tomography with classical shadows.
- Manuscript submitted (arXiv preprint arXiv:2305.01078).

Institute for Quantum Computing, University of Waterloo

May 2022 – Aug. 2022

Undergraduate Research Assistant

- Supervised by Prof. Christine Muschik, collaborated with Prof. Randy Lewis and IBM Quantum.
- Worked on experimental simulation of fundamental interactions with a quantum computer.
- Manuscript accepted by Physical Review Research (Phys. Rev. Research 5, 033184).

Department of Physics, McGill University

May 2021 – Apr. 2022

Undergraduate Research Assistant

- Supervised by Prof. Bill Coish.
- Worked on excited states and linear response dynamics with neural network quantum states.
- Manuscript accepted by Wiley's Advanced Physics Research as Editor's Choice (Advanced Physics Research, 2300078).

PUBLICATIONS

- [1] **Victor Wei**, Alev Orfi, Felix Fehse, and William A. Coish, “Finding the Dynamics of an Integrable Quantum Many-Body System via Machine Learning”, *Advanced Physics Research*, 2300078 (2023). (Editor’s Choice)
- [2] **Victor Wei**, William A. Coish, Pooya Ronagh, and Christine A. Muschik, “Neural-Shadow Quantum State Tomography”, *arXiv preprint arXiv:2305.01078* (2023). (Submitted and under review)
- [3] Yasar Y. Atas, Jan F. Haase, Jinglei Zhang, **Victor Wei**, Sieglinde M.-L. Pfaendler, Randy Lewis, and Christine A. Muschik, “Simulating One-dimensional Quantum Chromodynamics on a Quantum Computer: Real-time Evolutions of Tetra- and Pentaquarks”, *Phys. Rev. Research* 5, 033184 (2023).

RESEARCH PRESENTATIONS

Perimeter Institute Quantum Intelligence Lab (PIQuIL) Seminar – Perimeter Institute, Waterloo

- Nov. 10th, 2023. In-person invited talk.

Transdisciplinary Institute for Quantum Information (INTRIQ) Fall 2023 Meeting – Montreal

- Oct. 17th to Oct. 18th, 2023. Poster presentation.

Coherent Quantum Dynamics – OIST, Okinawa

- Sep. 26th to Oct. 5th, 2023. Poster presentation.

Machine Learning for Quantum Many-Body Systems – Perimeter Institute, Waterloo

- Jun. 12th to Jun. 16th, 2023. Poster presentation.

Quantum Simulators of Fundamental Physics – Perimeter Institute, Waterloo

- Jun. 5th to Jun. 9th, 2023. Poster presentation.

AWARDS AND HONORS

E. R. Pounder Prize in Physics – McGill University, Montreal

- Awarded in 2021, valued at \$395 CAD.

Dean’s Honor List – McGill University, Montreal

- Awarded in 2021.

Excellence Bursary for Computer Science – McGill University, Montreal

- Awarded in 2021, valued at \$1000 CAD.

NSERC Undergraduate Research Award – McGill University, Montreal

- Awarded in 2021, valued at \$6000 CAD.

J. W. McConnell Scholarship – McGill University, Montreal

- Awarded in 2020, 2021, and 2022, valued at \$5000 CAD per year.

OTHER EXPERIENCE

Okinawa School in Physics: Coherent Quantum Dynamics

Sep. 2023 – Oct. 2023

Okinawa Institute of Science and Technology (OIST), Onna, Okinawa (Japan)

- Two-week-long summer school consists of lectures and research presentations.

Book Club Participant (Physical Realizations of Quantum Computers)

Jun. 2022 – Aug. 2022

Institute for Quantum Computing, University of Waterloo, Waterloo, ON

- Led by Prof. Raymond Laflamme and Shayan Majidy.

Undergraduate School on Experimental Quantum Information Processing (USEQIP)

Jun. 2022

Institute for Quantum Computing, University of Waterloo, Waterloo, ON

- Two-week-long summer school consists of lectures and a lab project.

Book Club Participant (Complex Systems and Statistical Learning)

Feb. 2021 – Feb. 2022

McGill University, Montreal, QC

- Led by Prof. Archer Yi Yang.

International Summer School for Young Physicists (ISSYP)

Jul. 2019

Perimeter Institute, Waterloo, ON

- Two-week-long summer school on theoretical physics.

SKILLS

Programming Languages

- Python, C++, Julia, Java, Mathematica, Matlab, L^AT_EX.

Languages

- Proficient or native: English, Mandarin Chinese.