

KHANH UYEN GIANG

Summary

Research Assistant in Quantum Information at Nanyang Technological University (Singapore), with a Master of Physics degree from University of Oxford.

Skill

- Python (Qiskit, Qibo, Qutip, Tenpy)
- MatLab, C++
- SLURM, Latex
- Microsoft SQL
- Microsoft Power BI

Award

- Gold Prize, British Physics Olympiad (BPhO), 2018
- Gold Prize, British Maths Olympiad (BMO), 2017

Certificate

- Amazon Web Service (AWS) Cloud Practitioner (2023)

Extracurricular

- Oxford University Ambassador and mentor for Target Oxbridge (2018-2022)
- Oxford Department of Physics Ambassador (2020-2022)
- Vice President of Vietnamese Society in Oxford (2020-2022)

Language

- Vietnamese (Native)
- English (Fluent)
- German (B1)

Education

EXETER COLLEGE, UNIVERSITY OF OXFORD, Oxford, United Kingdom

Master of Physics (MPhys), 10/2021 to 07/2022

- Second Class Honours, Division One (2:1)
- Coursework: Astrophysics and Quantum Information & Communication
- Master's thesis: *The resolved star formation history of Andromeda*

EXETER COLLEGE, UNIVERSITY OF OXFORD, Oxford, United Kingdom

Bachelor of Arts, Physics, 10/2018 to 07/2021 (Integrated into Master's degree)

BELLERBYS COLLEGE, Brighton, United Kingdom

A – Level, 09/2016-06/2018 (Physics, Maths, Further Maths, Chemistry: A*A*A*A)

Experience

TECHNISCHE UNIVERSITÄT DARMSTADT (TU Darmstadt), Germany

PhD Student, Starting 12/2025, Under Prof. Dr. Mariami Gachechiladze

- Will be working on quantum certification method.

NANYANG TECHNOLOGICAL UNIVERSITY (NTU), Singapore

Research Assistant, 07/2023 – 08/2025, Under Asst Prof Nelly Ng Huei Ying & Dr Marek Gluza

- Collaborated with Dr. Peter Leek's group (Oxford) to develop Double-Bracket Algorithmic Cooling (DBAC) [1] – a novel dynamic quantum algorithm addressing gaps in existing algorithmic cooling methods. Led theoretical work, circuit compilation and numerical verification.
- Programmed the Trotterization and decomposition of XXZ Hamiltonian evolution to demonstrate *Double-bracket quantum algorithms for high-fidelity ground state preparation* [2].
- Programmed hardware and simulation for superconducting transmon qubits on the quantum processing unit (QPU) at NTU, addressing decoherence, FPGA noise, randomized benchmarking, and dynamical decoupling. Developed optimized control simulations for Heisenberg interaction utilizing hardware ZX coupling.
- Contributed to Qibo, an open-source quantum computing framework: Developed QDP (Quantum Dynamic Programming) and DME (Density Matrix Exponentiation) packages to enable a dynamic programming approach to quantum circuits. Collaborated with the Qibo team at TII, Abu Dhabi, running Qibocal calibration procedures on a Platinum 11q chip.
- Performed analytical and numerical analysis for tomographic recovery methods to reconstruct density fluctuations and phase fluctuations between two coupled 1D Bose gas in a double well potential.

Research Intern, 02/2023 – 07/2023, Under Dr Marek Gluza

- Researched matrix analysis, group theory, and linear algebra for quantum computing.

DEPARTMENT OF PHYSICS, UNIVERSITY OF OXFORD, Oxford

Master Student, 10/2021 to 07/2022, under Dr Becky Smethurst and Prof Chris Lintott

- Analyzed pixel-wise star formation history in Andromeda using optical and UV photometry. (see Education)

Publication

[1] Alghadeer, M. & **Giang, K.U.** et al., *Double-Bracket Algorithmic Cooling*, arXiv: [2510.00302](https://arxiv.org/abs/2510.00302) (2025)

[2] Robbiati, M. & **Giang, K.U.** et al., *Double-Bracket Quantum Algorithms for High-Fidelity Ground State Preparation*, arXiv: [2408.03987](https://arxiv.org/abs/2408.03987) (2024)