

HIGHLIGHTS

- **In-depth knowledge** of important concepts in quantum computing, information, and advantage, including stabiliser formalism, classical simulation, and contextuality
- **Three publications** demonstrating strong skills in mathematical problem-solving and scientific computation, as well as efficient teamworking, communication skills, multitasking, and learning ability
- **Programming experience** in Python (numpy, scipy, pandas, scikit-learn), SageMath, C++, Git, Bash, Julia, SQL, BigQuery, MATLAB, R, and Java
- **Languages:** English (native speaker), Mandarin Chinese (conversational), and German (A level)

RESEARCH EXPERIENCE

Quantum Computing

Three-qubit nonlocality paradoxes: beyond GHZ

July 2026

With Nadish de Silva, Santanil Jana

Submitted to CMP; preprint on [arXiv](#)

A classification program for nonlocality paradoxes of three qubits

June 2025

With Nadish de Silva, Santanil Jana

Paper in [EPTCS](#)

- Developing a complete classification of strong nonlocality quantum paradoxes of three qubits, using a combination of analytic and computational methods, helping to advance our understanding of resources for quantum advantage
- Presented at Quantum Physics and Logic 2025 & 2026, MFoQA 2026

Fast algorithms for classical specs of stabiliser states and Clifford gates

December 2024

With Nadish de Silva, Wilfred Salmon

Paper in [Quantum](#)

- Developed linear-algebraic theory for converting between different mathematical descriptions of stabiliser states and Clifford gates, which has potential applications in circuit/gate synthesis and classical simulation of quantum circuits
- Implemented our algorithms in Python and C++, benchmarked them to show their efficiency, and published a Python library to make our code available for public use

Bases for optimising stabiliser decompositions of quantum states

July 2024

With Nadish de Silva, Sergii Strelchuk

Paper in [QST](#)

- Developed the theory of linear dependencies of stabiliser states, guided by computationally generated examples, with a view to optimising stabiliser decompositions of general quantum states
- Implemented an optimisation algorithm based on this theory to find improved upper bounds on stabiliser extent, using Python wrappers for Gurobi

Systems Biology

Mathematical Modelling of a Cytoskeletal System

May 2022

Supervised by Dr François Nédélec

- Programmed a genetic algorithm in Python that used a C++ cell cytoskeleton simulation tool to determine optimal parameters for plasmid separation, helping the lab to make improvements to optimisation techniques in computational biology and demonstrating ability to tune complex systems with multiple variables

- Conducted systematic data analysis of simulation outputs, creating matplotlib heatmaps and visualisations to communicate optimal parameter ranges and algorithm effectiveness

Modelling the Partial Migration of the Evening Grosbeak

March 2022

Group mini-project

- Used R to integrate public spatial data with clustering analysis to identify regional population patterns, visualise bird populations by plotting clusters and boundaries on a map, and create several mathematical models to predict current and future migratory behaviour, including the impact of rising temperatures

EDUCATION

PhD in Mathematics (Quantum Computing)

Simon Fraser University, Burnaby, BC, Canada

September 2022 – present

Supervisor: Dr Nadish de Silva

Master of Science (Part III Systems Biology)

Trinity College, University of Cambridge, UK

September 2021 – July 2022

BA (Hons) in Mathematics

Trinity College, University of Cambridge, UK

October 2018 – August 2021

LEADERSHIP, TEACHING AND OUTREACH

Chinatown Organiser

Dandelion Action and Learning Collective (Vancouver, BC)

May 2025 – present

- Organised, facilitated, and interpreted at events aimed at building bridges between Vancouver's Chinatown and the Downtown Eastside. Worked in a team to plan and run an MMIWG workshop to teach important historical context to Chinatown residents

Teaching Assistant

Simon Fraser University

September 2022 – present

- Led tutorials and workshops for undergraduate courses in introductory calculus, analysis, linear algebra, and quantum computing, helping students improve their mathematical knowledge and skills
- Graded exams for large classes to track students' progress, demonstrating ability to work meticulously and consistently for long periods of time

Union Organiser

Teaching Support Staff Union

July 2023 – present

- Facilitated effective liaison between (student) workers in the Math Department and union executives through emails, meetings, and doorknocking, dealt with grievances, ensuring that workers felt supported and their interests were represented in bargaining
- Served on the Finance Committee, examining budget proposals, analysing financial statements and audit reports, and contributing recommendations of appropriate spending and saving, helping to ensure the Union's long-term financial sustainability

Undergraduate Representative

Faculty Board of Mathematics, University of Cambridge

November 2019 – November 2020

- Communicated ideas between students and Faculty Board members through emails and meetings, showed initiative in researching and pushing to implement suggestions such as lecture recordings and more departmental resources

- Worked diligently during the Covid-19 pandemic to advocate for more accessible and forgiving exams, by conducting a survey that was completed by 636 undergraduate students and writing a report for the Faculty Board. Efforts were recognised by an Outstanding Student Contribution to Education Award