

# Evan Hockings

evan.hockings@sydney.edu.au

evanhockings@gmail.com

+61 499 555 822

evanhockings.github.io

## Education

Doctor of Philosophy (Physics)

2021–Present

University of Sydney

Thesis: Scalable noise characterisation of fault-tolerant quantum computers

Advisors: Andrew Doherty, Robin Harper

Bachelor of Science (Advanced Mathematics) (Honours) in Physics

2017–2020

Honours Class I and the University Medal

University of Sydney

Thesis: Scalable estimation of quantum noise

Advisor: Steven Flammia

Undergraduate weighted average mark: 90

Majors: Physics, Mathematics

## Awards and Honours

- Unitary Foundation Microgrant 2024
- Australian Government Research Training Program Scholarship 2021–2024
- University of Sydney Honours Scholarship 2020
- Dean's List of Excellence in Academic Performance 2017, 2018, 2019, 2020
- Faculty of Science Olympiad Scholarship 2017–2020
- Sydney Scholars Award 2017–2019
- School of Physics Julius Sumner Miller Scholarships for Academic Excellence No. 3 2019
- Walter Burfitt Scholarship No. 2 for Physics 2019
- University of Sydney Academic Merit Prize 2017, 2018
- Science Foundation for Physics Scholarship No. 2 2018
- School of Physics Julius Sumner Miller Scholarships for Academic Excellence No. 1 2017
- International Chemistry Olympiad Bronze Medal 2016

## Publications

1. **E. T. Hockings**, A. C. Doherty, R. Harper. Improving error suppression with noise-aware decoding. arXiv preprint, 2025. [arXiv:2502.21044](#).
2. **E. T. Hockings**. QuantumACES.jl: design noise characterisation experiments for quantum computers. **Journal of Open Source Software** 10, 107, 7707, 2025.
3. **E. T. Hockings**, A. C. Doherty, R. Harper. Scalable noise characterisation of syndrome extraction circuits with averaged circuit eigenvalue sampling. **PRX Quantum** 6, 010334, 2025. [arXiv:2404.06545](#).
4. Y. Li, R. P. Sabatini, S. K. K. Prasad, **E. T. Hockings**, T. W. Schmidt, G. Lakhwani. Improved optical confinement in ambipolar field-effect transistors toward electrical injection organic lasers. **Applied Physics Letters** 119, 163303, 2021.

## Software

### QuantumACES.jl

- Open-source Julia package for designing, simulating, and implementing scalable noise characterisation experiments for quantum computers, supported by the Unitary Foundation.

## Talks

1. Scalable noise characterisation of syndrome extraction circuits with averaged circuit eigenvalue sampling.
  - 1.1. Invited talk at EQUIS Annual Workshop 2024, December 12th, 2024.
  - 1.2. Invited talk at IBM Research, Yorktown Heights, October 17th, 2024.
  - 1.3. Contributed talk at Assessing Performance of Quantum Computers (APQC) 2024, October 7th, 2024.
  - 1.4. Invited online talk at Thomas Monz's group, University of Innsbruck, August 1st, 2024.
  - 1.5. Invited talk at Coogee'24 Sydney Quantum Information Theory Workshop, April 4th, 2024.
  - 1.6. Contributed talk at School of Physics HDR Symposium (awarded 3rd place), University of Sydney, November 10th, 2023.

## Experience

### Physics Research Assistant

Advisor: Stephen Bartlett

September 2024–Present

School of Physics, University of Sydney

### Chemistry Research Assistant

Advisor: Girish Lakhwani

February–June 2019

School of Chemistry, University of Sydney

### Physics Summer Research Internship

Advisor: Daniel Cocks

November 2018–January 2019

Research School of Physics, Australian National University

### Chemistry Summer Research Internship

Advisor: Girish Lakhwani

January–March 2018

School of Chemistry, University of Sydney