

ADITHYA SIREESH (ADI)

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EDUCATION

University of Edinburgh <i>PhD in Quantum Error Correction</i> Supervised by Dr. Joschka Roffe & Dr. Alexandru Cojocaru. See	Sep 2024 – Feb 2028 (expected)
Imperial College London <i>MSc in Advanced Computing — Distinction</i>	Oct 2021 – Oct 2022
University of Edinburgh <i>BSc (Hons) in Computer Science and Mathematics — First Class</i>	Sep 2016 – May 2020

EXPERIENCE

Quantum Software Lab, University of Edinburgh <i>Research Assistant (Part-time)</i>	Nov 2024 – Present <i>Edinburgh, UK</i>
<ul style="list-style-type: none">Exploring hardware accelerated quantum error correction decoding protocols.Developed a resource-estimation package for automated resource estimation of cryptographic attacks on RSA and ECC (see QuantumThreatTracker).	
<i>Research Assistant (Full time)</i>	Sep 2023 – Oct 2024
<ul style="list-style-type: none">Worked on projects related to verification of BQP computations as a part of the Autonomous Quantum Technologies grant (AutoQT).Setup Quantum Error Correction reading group in the lab.	
Inveriant Inc. <i>Quantum Computing Researcher (Python)</i>	Oct 2022 – Sep 2023 <i>Remote (Singapore/London)</i>
<ul style="list-style-type: none">Worked at a spin-off from Center for Quantum Technologies (CQT), on resource estimation and optimization of fault-tolerant quantum algorithms for cryptographic attacks, with a focus on developing cheaper quantum arithmetic subroutines.	
Amazon Prime Video <i>Software Development Engineer (AWS, React, Kotlin, Python)</i>	Sep 2020 – Sep 2021 <i>London, UK</i>
<ul style="list-style-type: none">Built internal testing and automation tools.Improved developer pipelines and partner device integration workflows.	
<i>Software Development Intern</i>	Jul 2019 – Sep 2019
<ul style="list-style-type: none">Designed and deployed a serverless data lake for Prime Video analytics.Created dashboards to visualize customer engagement metrics.	
AlgoSurg Inc. <i>Machine Learning Intern (Python)</i>	Jun 2018 – Sep 2018 <i>Mumbai, India</i>
<ul style="list-style-type: none">Developed statistical shape models (SSMs) for CT knee segmentation, reducing manual annotation effort in clinical workflows.	
HypEd — University of Edinburgh Hyperloop Team <i>Software Developer (C++)</i>	Oct 2017 – Jun 2018 <i>Edinburgh, UK</i>
<ul style="list-style-type: none">Devised an orientation-detection algorithm using proximity-sensor data.Contributed to simulation and math libraries in C++.	

PUBLICATIONS

Logical accreditation: a framework for efficient certification of fault-tolerant computations

J. Mills, **A. Sireesh**, D. Leichtle, J. Roffe, E. Kashefi — *7th Int. Conf. on Quantum Error Correction (QEC 2025)* — Contributed Talk

Disentangling quantum autoencoder

A. Sireesh, A. Alhajri, M. S. Kim, T. Haug — *Quantum Science and Technology (IOP), 2025*

Measurement-based uncomputation of quantum circuits for modular arithmetic

A. Luongo, A. M. Miti, V. Narasimhachar, **A. Sireesh** — *ACM/IEEE Design Automation Conf. (DAC 2025)* — Contributed Talk

Optimized circuits for windowed modular arithmetic with applications to quantum attacks against RSA

A. Luongo, V. Narasimhachar, **A. Sireesh** — *ACM/IEEE Design Automation Conf. (DAC 2025)* — Contributed Talk

OPEN SOURCE PROJECTS

Quantum Threat Tracker (QTT)

Open-source tool for estimating when quantum computers will break RSA/DH/ECC protocols. Developed with support from Ofgem, Cambridge Consultants, and the University of Edinburgh.

COMPETITIONS

Semifinalist — Google Quantum XPRIZE 2025

Developed a *Quantum Elastic Network Model (qENM)* framework for simulating large-scale molecular dynamics (with applications to graphene), inspired by Babbush *et al.*, PRX 2023.

3rd Place — NQCC Quantum Hackathon 2022

Optimized 5G beam steering for British Telecom using hybrid quantum-classical solvers (annealing, QAOA, and classical baselines).

1st Place — Ericsson Challenge, Hack Junction 2019

Built reinforcement-learning agents for transport network optimization at Europe's largest hackathon.