María Gragera Garcés

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Introduction

I'm a PhD student at the University of Edinburgh's Quantum Software Lab, funded by the Oxford Quantum Technology Hub DTP and VeriQloud, working on distributed quantum computing with Prof. Chris Heunen and Prof. Mahesh Marina. With a physics background, I've worked on quantum networking, photonic simulations, and quantum software across industry internships.

Work History

Quantum Software Lab *Edinburgh*
PhD Researcher *Sep 2024 – Aug 2028*

- Developing frameworks for model agnostic distributed quantum computing for hybrid workloads.
- Investigating circuit partitioning, communication protocols, and resource scheduling for quantum networks.

Quantinuum *Cambridge*
Quantum compiler intern *Sep 2025 – Dec 2025*

- Built a parallelized circuit optimizer in Rust for Quantinuum's TKET compiler.

National Quantum Computing Centre *STFC Harwell Campus*
Quantum Software Resident *Mar 2024-May 2024*

- Developed and deployed Trotterized Vlasov–Poisson simulations for plasma modelling on quantum hardware.
- Worked with NQCC application engineers to solve real-world use cases with quantum computers.

IBM Quantum *Zurich, Remote*
Community Advocate Intern *May 2023 – Aug 2024*

- Built and maintained IBM's UK Quantum Community, collaborating with partners and Quantum Hubs.
- Promoted IBMQ infrastructure adoption through tailored programs and community engagement.

Cisco *London*
Placement Research Intern *Jul 2021 – Aug 2022*

- Led internal quantum network simulation efforts using discrete event simulator tools.
- Collaborated with academic research groups from the Centre for Quantum Networks (CQN).

Google Summer of Code *Remote*
Open Source Developer *Jun 2022 – Sep 2022*

- Implemented a quantum error correction code library for Julia's QuantumClifford.jl Clifford gate simulator.

Education

PhD in Quantum Informatics *Sept 2024 – August 2028*
University of Edinburgh

Conferences: SIGCOMM, ARC Quantum Summer School, FQCE25, Entanglement Information and Complexity in Quantum Systems, NQCC Scalability Conference, NPL Quantum Simulation and Digital Twins masterclass

BSc Physics *Sept 2019 – July 2024*
University of Bath

Publications

On the Distortion of Partitioning Performance by Random Quantum Circuits *ICDCS DisQIC 2026*

Distributed Quantum Circuit Optimisation: Evaluating Global and Local Encodings *ICDCS DisQIC 2026*

Distributed Quantum Error Mitigation: Global and Local ZNE Encodings — *INFOCOM QUNAP 2026*

Distributed Quantum Computing Across Heterogeneous Hardware with Hybrid Dependency Hypergraphs — *SIGCOMM Poster 2025*

Introducing Quantum Computing to High-School Curricula: A Global Perspective — *arXiv 2025*

Controlling Quantum Communication via Quantum Memory Management — *US Patent 2024*

Realizing a Sustainable Quantum Internet for the Smallest/Future Researchers — *QIH 2022*

Awards

SandboxAQ Research Excellence Scholarship – $10,000 award — *Aug 2025*

Unitary Foundation Microgrant – $4,000 for HDH library development — *Aug 2025*

Femtum Leap Awards Finalist – Rising Star award nomination — *2023*

Prize Winner, Quantum Internet Hackathon 2022 — *2022*

Selected Talks

Distributed Quantum Error Mitigation – *INFOCOM QUNAP* — *Tokyo, Apr 2026*

Distributed Quantum Circuit Optimisation – *QCTIP* — *Oxford, Apr 2026*

Hybrid Dependency Hypergraphs for Distributed Quantum Computing – *IWQC* — *Helsinki, Sep 2025*

Distributed Quantum Computing Frameworks – *WERQSHOP, NYU* — *New York, Apr 2025*

Quantum Software for the Next Generation – *Youth Quantum Summit* — *Oxford, Nov 2024*

Open Source Projects

HDH library (2025–present) – Python library for Hybrid Dependency Hypergraphs in distributed quantum computing. — *Documentation*

ZNE-DQC (2026) – Zero-noise extrapolation implementation for distributed quantum systems — *GitHub*

QEC library for QuantumClifford.jl (2022) – Comprehensive quantum error correction code library for Julia; Google Summer of Code project — *GSoC summary*

Service & Community

Peer Reviewer – IEEE Transactions on Quantum Engineering; EPJ Quantum Technology (Springer Nature) — *2026 – present*

Student Contributor, Physics World (IOP Publishing) — *2026 – present*

Ambassador, Classiq Technologies — *2024 – 2028*

Co-founder & Director, bqb Quantum Youth – international student-led quantum education initiative — *2022 – 2026*

Technical Skills

- **Languages:** Python, Rust, C++, Julia
- **Quantum frameworks:** Qiskit, pytket (TKET), NetSquid, SeQUeNCe
- **Tools:** Git, GitHub Actions, LaTeX, HyperGraph partitioners (KaHyPar)