

Kaalkidan Sahele, DPhil

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Education

University of Oxford (DPhil) Funded by Department of Computer Science & Black Academic Futures programme (BAF)
2025 - Present (Grad. 2028/29) *Supervised by Prof. Ian Horrocks & Prof. Bernado Cuenca Grau*

Durham University (MEng) Computer Science First Class Honours
2021 - 2025

Research Experience

Graduate Teaching Assistant | University of Oxford Incoming Oct 2025

Advanced Final Research Project (Awarded: First Class) | Durham University Sep 2023 - Jun 2025

- Project includes deriving novel theoretical results as well as coding and modelling temporal graphs

MITACS Globalink Research Intern | University of Toronto Jun 2024 - Sep 2024

- Derived novel pulse functions** for quantum circuits, improving gate-to-pulse conversion fidelities of rotation gates
- Achieved novel pulse based implementation of encoder circuits using gate-to-pulse conversion
- Co-authored paper titled **“Parameterised Encoder Circuits and Efficient Circuit Growth for QML”**
- Achieved **comparable fidelity results** of generalised rotation gates to **Adam optimiser**
- Contributed to **poster presentation** for **10th International Conference on Quantum Information and Quantum Control (CQIQC-X)**
- Presented at **Quantum Tea Seminar Series**

Lab Demonstrator | Durham University Sep 2023 - Present

- Taught theory of computation, algorithms & complexity, data structures, linear algebra, calculus

Research Shadowing | Durham University Jun 2023

- Shadowed Professor George Mertzios in his ongoing research projects with his current PhD students
- Projects include Labelling Strategies on Periodic Temporal Graphs

Paper Reviewer | Durham University, University of Toronto

- Non-PC member reviewer for papers in **3rd Symposium on Algorithmic Foundations of Dynamic Networks (SAND 2024)**
- Non-PC member reviewer for paper in **42nd International Symposium on Theoretical Aspects of Computer Science (STACS 2025)**
- Non-PC member reviewer for papers in **IEEE International Conference on Quantum Computing and Engineering (QCE2024)**
- Regularly attend **ACiD (Algorithmic Complexity in Durham) Seminar** series
- Regularly attended **Toronto Quantum Information Seminar**

Leadership & Other Work Experience

GitHub Campus Expert | GitHub Nov 2024 - Present

- Workshop Lead: GitHub & IDEs, Machine Learning
- Lead tech communities

President | Durham University Computing Society Jun 2024 - Jun 2025

- Lead** executive team & society, including overseeing **all 5 subdivisions** (Computing Society, Durham University Women in Tech/ DurHack/ DurHack: Next Gen/ Durham SIAM & IMA Chapter/ Robotics)

Co-founder & Lead | DUWiT Hacks (Durham University Women in Tech) Dec 2024 - Mar 2025

- Singlehandedly **raised £7k** sponsorship
- Acted as main point of contact for event logistics, catering, sponsors and partners, prize givers, volunteers, and attendees

Head of Hacker Experience | DurHack 9 Dec 2023 - Nov 2024

- Increased % of female identifying attendees from **22%** in DurHack 8 to **23.6%** in DurHack 9
- Pioneered the creation of HackPacks, leading to a submission rate of **133 projects** amongst 600 attendees
- Initiated collaboration efforts for **first ever UK-US hackathon portal** with Hack North Carolina, fostering **global hacker community engagement**

IT Officer | St. Aidan's JCR CIO, Durham University Jun 2022 - Jul 2023

- Redesigned** the website, improving **site visitor count** by **11%**
- Migrated 8000** rows of data from website database from **Heroku to AWS** via Windows **PowerShell**
- Streamlined** the online **Google workspace** for the entire JCR executive committee

Notable Projects & Awards

Awards	Durham Inspired Coleman Scholarship 2021-25 (one recipient per cohort) MITACs Certificate of Completion 2024 Scott Logic Prize (Professor Sue Black resp.) prize for Outstanding Contribution to Durham community (Women in Tech community resp.)
Projects	CS224W: Machine Learning with Graphs (Stanford) Completed the course independently once all material was made available online Graph-Based Modelling for Network Analysis Investigated graph-theoretic concepts to model and analyse networks, focusing on clustering coefficients and centrality measures. Modelling was completed in Python with various supporting libraries.

References are available upon request.