Kaalkidan Sahele, DPhil

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Education

University of Oxford (DPhil) Funded by Department of Computer Science & Black Academic Fuures 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 | Durham University **Sep 2023 - Jun 2025**
- Awarded First Class mark
- 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**
- Theory of Computation, Algorithms & Complexity
- Algorithms & 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)
- Head of Hacker Experience for DurHack 9
- Co-founded and Co-Leading DUWiT Hacks 2025

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
x2 Hackathon Winner
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.