

SKILLS

Programming Languages	Python, C#, C, Dart, Kotlin, GDScript, Bash, Lua
Libraries & Frameworks	PyTorch, Qiskit, Numpy, Scipy, Matplotlib, Seaborn, Pandas, PennyLane, Strawberry Fields
Backend & Frontend	ASP.NET Core, PostgreSQL, Entity Framework Core, Flutter, Blazor
Other Technologies	Git, Linux, Deep Learning, Arduino, Godot Game Engine

EXPERIENCE

Computational Astrophysics and Data Analytics Laboratory, University of Nairobi

Teaching Assistant

March 2024 - Current

- Developing course material and tests and teaching Python programming, computational simulations and numerical analysis for Astrophysics.

Ocluse Interactive

Backend Developer

2022 - 2024

- Development of REST APIs for instance; Themis API serving 1.65K+ monthly active users with Kenyan laws and legal materials, and Grace API handling 1000+ monthly active users as an MIS for faith-based organisations.
- Linux system administration: Monitoring for server health, 100% uptime and services availability, consistently meeting SLAs.

Ocluse Interactive

Mobile App Developer

2022 - 2024

- Development of [Sheria - Kenya Law](#) android app interfacing Themis API with 1.65K+ monthly active users.
- Design, development and maintenance of monorepo of client mobile apps that interface with MIS API with over 1000 monthly active users

International Astronomical Search Collaboration

Researcher

January 2022 - February 2022

- Collaborated in a team of 10 analysing telescope imagery data from Pan-STARRS to identify and locate near-Earth objects and Main Belt asteroids using astronomy software.

PUBLICATIONS

JOURNAL ARTICLES

Design and Implementation of Quantum Repeaters: Insights on Quantum Entanglement Purification

Karoki A. Mũgambi, Geoffrey O. Okeng'o

Journal of Quantum Computing pp. 25–40. 2023. ISSN: 2579-0145. DOI: [10.32604/jqc.2023.045654](https://doi.org/10.32604/jqc.2023.045654)

CONFERENCE PROCEEDINGS

Design and Implementation of Modern Quantum Repeaters for Future Quantum Communication Technology and Teleportation

Karoki A. Mũgambi, Geoffrey O. Okeng'o

Proceedings of the 5th Annual Conference of The Faculty of Science and Technology, 2022, Nairobi, Kenya

PRESENTATIONS

One Quantum Kenya

Nairobi, Kenya

Presented Research in Quantum Communication

18th March 2023

- Presented my research on future long-distance quantum communication on quantum internet using quantum repeaters.

University of Nairobi Research Week

Nairobi, Kenya

Presented A Research Paper at the 5th Annual Conference of the Faculty of Science and Technology

24 - 28 October 2022

- Showcasing my research on quantum repeaters for the advancement of quantum communication technologies.

One Quantum Kenya

Nairobi, Kenya

IEEE University of Nairobi, One Quantum Kenya Community Launch

2nd July 2022

- Presented an insightful session on 'Entry into Quantum Computing, Applications, and Developments'.

EDUCATION

University of Nairobi

Nairobi, Kenya

MSc in Physics

Oct 2023 - 2025

- Applying analytical and numerical analysis and computational simulations to study errors and improve error correction techniques to achieve fault-tolerance quantum computations.

University of Nairobi

Nairobi, Kenya

BSc Astronomy and Astrophysics

Sept 2018 - Dec 2022

- Computational simulations using Qiskit library to make comparative study on various algorithms used in Variational Quantum Eigensolver circuits.