

Mhina Lukurunge | Computer Engineer

Telephone: +255(0) 656 336 356

Email: mhinalukurunge@gmail.com

Professional Profile

A dedicated Computer Engineer and current MSc student in Data Science and Artificial Intelligence, awarded the prestigious Samia Scholarship Extended (DS/AI+) by the Government of Tanzania, with a strong foundation in data management, system design, and team leadership.

My expertise was honed over three years of hands-on experience, including serving as a District Data Officer on a CDC-funded public health initiative. I managed the full data lifecycle, led a team of 21 Data Officers, and oversaw multiple TB/HIV, CECAP, GBV, and Option B+ facilities, ensuring accurate and timely reporting through systems like DHIS2 and DATIM.

I currently serve as Tutorial Assistant in Computer Engineering at Mbeya University of Science and Technology while building resilient, real-world data systems.

Core Skills

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|------------------------|-------------------|---------------------------------|
| • Machine learning | • Problem solving | • Emotional intelligence |
| • Big data analytics | • Data management | • Collaboration |
| • Software development | • Decision making | • Strategic planning & thinking |

Career Summary

October 2025 – Current

Tutorial Assistant

Mbeya University of Science and Technology – Rukwa Campus

Outline

Guiding students and supporting academic initiatives.

Key Responsibilities

- To Understudy senior members, including attending lectures and seminars, tutorials and practical training;
- To conduct tutorials, seminars and practical sessions;
- To assist in research, consultancy and outreach activities; and
- To perform any other duties that the relevant authorities may assign

January 2024 – September 2025 District Data Officer
Afya Hatua Program, Tanzania Health Promotion
services (THPS)

Outline

Broadening the efficiency and quality of clinical care through technology.

Key Responsibilities

- Designed and optimized data infrastructure by implementing high-standard digital and paper-based data management systems across the district, ensuring compliance with national and donor data governance standards.
- Engineered and automated data pipelines for weekly, monthly, and quarterly reporting in DHIS2, DATIM, and other data platforms, improving data submission accuracy and timeliness to meet donor and government requirements.
- Performed advanced data analysis using SQL and data visualization tools to assess key health performance indicators, delivering actionable insights that informed strategic project decisions.
- Developed and executed data validation protocols by conducting regular Data Quality Assessments (DQAs), ensuring data integrity, accuracy, and consistency across multiple health systems.
- Supervised a team of 21 Data Officers, overseeing data collection, cleaning, and entry processes to ensure high-quality data input into centralized reporting systems.
- Monitored and evaluated datasets to detect trends, anomalies, and potential risks, leading to data-driven recommendations for optimizing healthcare service delivery. • Collaborated with cross-functional stakeholders, including Regional and National Authorities, to ensure the seamless integration and availability of data collection tools across all facilities.
- Maintained data security and compliance by implementing standard documentation practices and ensuring accurate recording of sensitive indicators within secure systems.
- Led data integration projects by coordinating with regional and IP stakeholders to streamline data analysis, reporting, and dissemination for improved operational efficiency.
- Supported continuous system improvement through participation in Quality Improvement (QI) meetings, providing data-driven insights to enhance healthcare interventions.
- Communicating closely with District, Regional and Headquarters THPS staff to ensure smooth uninterrupted availability of HIV interventions in my District.

Key Achievements

- Developed an automated S.E.A.L.S reporting template that streamlined weekly data analysis, enabling early detection of trends and anomalies. This tool significantly enhanced data-driven decision-making and operational efficiency.
- Engineered a custom VL eligibility reporting system, improving the accuracy of facility-level data tracking for patient follow-ups. This system directly contributed to

a 95%+ District VL Coverage on a monthly basis, showcasing measurable performance improvements.

July 2023 – December 2023

**Data Officer
Amref Health Africa**

Outline

To implement high-standard computer and paper-based HIV data and record management in accordance to Facility, District, Regional, Government and PEPFAR guidance.

Key Responsibilities

- Transcription of patient visit information to paper-based pre-ART and ART registers.
- Reviewing relevant clinic records and perform paper-based data quality checks on CTC2 cards and registers
- Conducting data entry for the CTC2 database from CTC cards, PITC/CBHTS/VCT registers and HEI cards
- Compiling Quarterly reports, for care and treatment, Mother to child cohort report and HTS reports
- Producing missed appointments/LTF reports on monthly basis and update final status of clients
- Performing basic data analysis and interpretation at facility level, encouraging data use for planning and decision making
- Participating in all QI meetings in the facility
- Working with DHIS2 in Quarterly data entry
- Performing daily data backup
- Performing data quality assurance checks for the data at rest in CTC2 database
- Performing other data tasks as assigned by the Medical Officer in Charge and DACC

August 2021 – July 2023

**IT Officer (Intern)
The Open University of Tanzania (OUT) in Kigoma
Regional Center**

Outline

Supporting the Institute to achieve its business goals by developing and enhancing its systems, also innovating new strategies in the marketing process.

Key Responsibilities

- Infrastructure Management for the installation, configuration, testing, and deployment of server hardware and software of the developed systems. Covering LAN infrastructure, Operating systems (Linux, Windows), email, databases, firewall systems and network services.
- Network Management: Install, configure, and maintain LANs, WANs, and network segments to ensure seamless connectivity. Managing network equipment, including routers, switches, firewalls, and VPNs, to optimize performance and swiftly resolve hardware and software issues.
- Database and System Maintenance: Manage and maintain databases (MS SQL, MySQL) to ensure data integrity and availability. Perform patch installations, software

upgrades, and regular system audits. Contribute to the design and implementation of user-friendly interfaces and functionalities to improve internal and external communication and data management. Participate in the development, programming, testing, debugging, and implementation of new application system releases, modules, and features for the institute.

- User Account Management: Administer user accounts, permissions, and access controls, including management of Active Directory and Group Policy.
- Technical Support: Provide advanced technical support to end-users by resolving hardware, software, and network issues in collaboration with the IT Assistant. Escalate problems and tasks as needed, following established procedures, and monitor issues through to resolution. Identify problem patterns and consult with supervisors to recommend solutions. Assist with the receipt, inspection, and verification of incoming ICT assets and supplies.
- Documentation and Training: Create technical documentation for existing and new applications, including functional specifications and training materials. Stay updated on current technology trends and coaching strategies, conduct benchmarking, and recommend relevant hands-on training sessions or new acquisitions.
- Designing doodle videos, brochures, and other infographics to improve the marketing process of the institute.
- Regular testing, troubleshooting, and overall maintenance of the existing network system.
- Making recommendations for system enhancements.

Key Achievements

- Developed Kigoma Regional Information System (KRIS).
- Designed online tracking system, to monitor students' academic progress and learning difficulties.
- Designed Doodle videos explaining the core functions of the institute.
- Increased online content marketing, when polled, 90% of consumers said they found self-explanatory videos helpful in making decisions.
- Designed Flyers describing contact information, special scholarship, and academic programs that the institute offers.
- Designed Flyers for the Chimpanzee Half Marathon as the institute was invited to participate.

2026 – Present

MSc. Data Science and Artificial Intelligence
Nelson Mandela African Institution of Science and Technology
(NM-AIST)

Relevant Coursework:

Mathematics for Machine Learning, Python for Data Analysis, Data Visualization, Big Data Analytics, and Research Methods and Soft Skills.

Key Projects:

Big Data Analytics Capstone (DSAI 6310)

Designed and implemented a real-time crypto price analytics pipeline processing live Binance WebSocket data for 5 cryptocurrencies. Built end-to-end system with Apache Kafka (dual-listener), Spark consumer, MongoDB storage, Kafka UI / Mongo Express monitoring, and Streamlit + Plotly dashboard (5-second refresh). Led the machine learning component: Random Forest classifier trained on 103k+ real 1-min candles; achieved 52.09% directional accuracy with engineered features (RSI, MA7/MA25, volatility). Processed 18,000+ records/hour with zero consumer lag.

Python for Data Analysis (DSAI 6100)

Conducted full EDA, data cleaning, outlier detection (IQR & Z-score), feature engineering, and PCA (manual eigenvalue decomposition + SVD) on 149k-transaction Coffee Shop Sales dataset.

Mathematics for Machine Learning (DSAI 6101)

Derived maximum-likelihood estimator for linear regression under Gaussian noise and solved the normal equation on the California Housing dataset (20,640 observations). Performed EDA, correlation analysis, outlier investigation, and computational complexity evaluation.

2019 – 2023

Bachelor of Engineering (B. Eng) in Computer Engineering
Dar es Salaam Institute of Technology (DIT)
GPA: 4.4 FIRST CLASS

Relevant Coursework:

System Analysis and Design, ICT Project Management, Management Information System, Data Mining and Analytics, Database Programming and Administration, Computer Networking, Technical Communication Skills, Computer Maintenance and Repair, and Computer basics and Office application.

Key Project:**Senior Project (COU 08204)**

IoT Remote Circuit Breaker for Remote Facility

2017 – 2019

Advanced Level – PCM Combination

Kibiti Secondary School

2013 – 2016

Ordinary Level – Science and Business Classes

Kibaha Secondary School

Extra curriculars

- i. Participated in the Digital Learning Africa Summit hosted by International Business and Economic Forum (IBEFoRuM)
- ii. Actively participated as a member of Young Scientists in Tanzania.
- iii. Participated in DSA 2026 Workshop and Summer school at Makerere University.

References

Dr. Joachim J. Mwambeleko

Lecturer

Mbeya University of Science and Technology

Tel: +255 [REDACTED]

Email: jo [REDACTED]

Dr. Chitegetse Minanago

Director, Kigoma Regional Center

The Open University of Tanzania

Tel: +255 [REDACTED]

Email: cm [REDACTED]

Mr. Remigius Casmir Sway

Assistant Lecturer

Mbeya University of Science and Technology

Tel: +255 [REDACTED]

Email: re [REDACTED]

Ms. Happyness Alexander

Assistant Lecturer

Dar Es Salaam Institute of Technology

Tel: +255 [REDACTED]

Email: ha [REDACTED]