

# Allan Vikiru

## Data Science | Machine Learning | Internet of Things

+254 735 696 067 | [vikiruallan12@gmail.com](mailto:vikiruallan12@gmail.com) | Nairobi, Kenya

[github.com/AllanVikiru](https://github.com/AllanVikiru) | [linkedin.com/in/allan-vikiru](https://linkedin.com/in/allan-vikiru) | [orcid.org/0000-0002-7739-5667](https://orcid.org/0000-0002-7739-5667)

### Career Profile

- Over 2 years of experience in progressively responsible roles in data science, artificial intelligence and internet-of-things.
- Demonstrated strengths in enhancing human-computer interaction by building sustainable systems including a project leveraging AI and IoT in the fight against illegal logging.
- Knowledgeable in languages for statistical modelling like Python, R and SQL for machine learning and spatial data analysis.
- Holder of a Master's in Information Technology (Business Intelligence and Data Analytics).

### Skills and Competencies

- |   |                                       |                                     |
|---|---------------------------------------|-------------------------------------|
| - Project Management  | - Technical Support                   | - Stakeholder Engagement            |
| - Data Management   | - Data Analysis                       | - Administration Support            |
| - Communication Skills  | - Commercial and Presentation Writing | - Exploratory Data Analysis         |
| - Data Visualisation  | - Machine Learning                    | - Neural Network Modelling          |
| - Spatial Data Analysis   | - Hardware Interfacing                | - Hardware Programming              |
| - Software Engineering,   | - System Analysis and Design          | - Agile, Scrum & Prototyping Models |
| - Object Oriented Development   | - Web and Cloud Development           | - Technical Writing                 |
| - Languages: C++, JavaScript, LATEX, MATLAB, Python, R  |                                       |                                     |
| - Software: Arduino, Docker, Git, Django, Microsoft Azure IoT, Heroku, IntelliJ IDEA, Power BI, QGIS, Streamlit, ThingSpeak |                                       |                                     |

### Work Experience

#### Tutorial Fellow - School of Computing & Engineering Sciences

##### Strathmore University

July 2024 - Present

**Role:** University Teaching; Research Coordination; Classroom Management; Project Supervision.

##### Achievements:

- Teaching up to 250 students on Artificial Intelligence, Information Security, Data Governance and Cloud Computing.
- Coordinating research activities at the School's Makerspace Lab including engaging at least 10 industry players and research institutions, 30 students and 3 research dissemination seminars.
- Supervising at least 20 student projects on systems development, challenge-driven education, machine learning, and Internet of Things.

#### Research Coordinator - School of Computing & Engineering Sciences (SCES) Makerspace Lab

##### Strathmore University

June 2023 - Present

**Role:** Research; Research Coordination

##### Achievements:

- Continually engaging a team of 6 researchers and at least 10 undergraduate students in developing computing and engineering projects.
- In charge of project administration for 'Curbing Illegal Logging Patterns using Sound-Based Detection Techniques'. Key tasks included internal and external stakeholder engagement, data collection and analysis, device prototyping, conducting project meetings and organising field visits to Nyangores Forest in Bomet County, and Ololua and Ngong Hills Forests in Kajiado County.
- Facilitated 2 workshops on Building an Open-Source Dosimeter and Fundamentals of Raspberry Pi 400 workshop supported by various partners for approximately 50 students. Delivered a session on Internet of Things developed and managed administrative tasks including student registration, facilitation of industry partners and ensuring provision of materials.

## **Graduate Assistant - School of Computing & Engineering Sciences**

**Strathmore University**

**March 2022 - June 2024**

**Role:** Research; Proposal Writing; Research Coordination; Stakeholder Engagement; Project Management; Field Testing.

### **Achievements:**

- Developed a research proposal on using machine learning and IoT to detect logging activities that received an award of USD 139,500.
- Contributor to three research papers on deep learning and cloud computing.
- Created a health informatics project involving an algorithm that uses spatial soil data to recommend foods for diabetic patients, which registered 80% accuracy.

## **Software Developer Intern**

**@iLabAfrica, IoT & Wireless Networks Lab**

**January 2022 - March 2022**

**Role:** Software Development; Stakeholder Engagement

### **Achievements:**

- Designed and implemented a monitoring dashboard in Vue.js and Node.js and an authentication system in Keycloak for a LoRaWAN-based research project.
- Designed and developed breadboard model devices to model LoRaWAN connectivity.
- Engaged at least 50 stakeholders in the planning and disseminating workshops on the Internet of Things and spectrum management.

## **Education**

### **MSc. Information Technology (Business Intelligence & Data Analytics)**

Strathmore University - Nairobi, Kenya

2024

### **BSc. Informatics & Computer Science**

Strathmore University - Nairobi, Kenya

2021

## **Conferences & Workshops**

### **Delegate - 5th International Conference on Smart Sensors and Application**

Universiti Teknologi Malaysia (UTM) - Penang, Malaysia

September 2024

### **Research Project Administrator**

Curbing Illegal Logging Patterns Using Sound-Based Detection Techniques - Kenya

July 2023 - September 2024

### **Organiser - Building an Open-Source Dosimeter**

Strathmore University - Nairobi, Kenya

August 2024

### **Delegate - Innovation Summit 2024**

Carnegie Mellon University Africa - Kigali, Rwanda

January 2024

### **Organiser - Fundamentals of Raspberry Pi 400**

Strathmore University - Nairobi, Kenya

November 2023

### **Presenter - Programming for IoT using Scratch on Raspberry Pi 400**

Strathmore University - Nairobi, Kenya

November 2023

### **Delegate - International Summer School in Cyber Security and Digital Forensics**

Brno University of Technology - Brno, Czech Republic

June 2023

### **Presenter - A Wearable Sensor System to Detect the Risk of Fireground Injuries among Firefighters**

5th International Symposium on Advanced Electrical and Communication Technologies - Casablanca, Morocco

March 2023

### **Presenter - Detecting the Risk of Fireground Injuries among Firefighters Using IoT**

6th Strathmore International Mathematics Conference

July 2021

## **Publications**

Ayankoso, S., Wang, Z., Shi, D., Yang, W., **Vikiru, A.**, Kamau, S., Muchiri, H., & Gu, F. (2024). Development of Long-Range, Low-Powered and Smart IoT Device for Detecting Illegal Logging in Forests. *Journal of Dynamics, Monitoring and Diagnostics*.

<https://doi.org/10.37965/jdmd.2024.550>

Simiyu, D., **Vikiru, A.**, Muchiri, H., Gu, F., & Butime, J. (2024). A Chainsaw-Sound Recognition Model for Detecting Illegal Logging Activities in Forests. In A. D. Ball, H. Ouyang, J. K. Sinha, & Z. Wang (Eds.), *Proceedings of the UNified Conference of DAMAS, IncoME and TEPEN Conferences (UNified 2023)* (pp. 797–806). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-](https://doi.org/10.1007/978-3-031-49421-5_65)

[031-49421-5\\_65](https://doi.org/10.1007/978-3-031-49421-5_65)

**Vikiru, A.** (2023, March 18). *Market Basket Analysis using Apriori Algorithm*. <https://allanvikiru.github.io/MarketBasketAnalysis/>

**Vikiru, A.**, Muiruri, M., & Ateya, I. (2023). *An Overview on Cloud Distributed Databases for Business Environments* (arXiv:2301.10673). arXiv. <https://doi.org/10.48550/arXiv.2301.10673>