Allan Vikiru

Data Science | Machine Learning | Internet of Things

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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
- Data Management
- Communication Skills
- Data Visualisation
- Spatial Data Analysis
- Software Engineering,
- Object Oriented Development
- Technical Support
- Data Analysis
- Commercial and Presentation Writing
- Machine Learning
- Hardware Interfacing
- System Analysis and Design
- Web and Cloud Development
- Stakeholder Engagement
- Administration Support
- Exploratory Data Analysis
- Neural Network Modelling
- Hardware Programming
- Agile, Scrum & Prototyping Models
- 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 Oloolua 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/10.1007/978-3-031-49421-5_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