

# Allan Vikiru

A researcher with a career objective of solving problems by conducting informative research and applying effective solutions in Computer Science.

## Education & Training

May 2022 – June 2024

**MSc. Information Technology [Business Intelligence and Data Analytics Option], Strathmore University**

- Awarded as a scholarship as part of the graduate assistantship.
- Thesis Title: A Predictive Model for Determining Vegetable-Derived Macronutrients for a Diabetic Patient

March 2017 – September 2021

**BSc. Informatics and Computer Science, Strathmore University**

- Award: First Class Honours

January 2023 – June 2023

**Teaching and Learning for Challenge Driven Education in a Global Context, KTH Royal Institute of Technology**

- Training in Challenge-Driven methodology in education towards developing solutions for sustainable development.

September 2022

**Python in Practice, Obuda University**

- Trained in Python programming concepts.

May 2022

**IT Essentials Instructor, AFRALTI**

- Trained in CISCO IT Essentials course in fundamental computing skills and teaching methods in Information Technology

## Work Experience

March 2022 – Current

**Graduate Assistant, School of Computing and Engineering Sciences, Strathmore University**

- Supported faculty in conducting tutorials for courses and supervision of student projects as assigned.
- Actively engaged in research activities through coordinating engagements at the SCES Makerspace Research Lab, attending and organising dissemination seminars, facilitating data collection and analysis, and writing research papers & grants.

## Contact



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## Skills

- **Data Science and Artificial Intelligence:** Python, R, MATLAB, and Microsoft Power BI; Techniques: Data Preparation and Visualisation, Regression Modelling, Neural Net Modelling, Association Analysis
- **Spatial Data Analysis:** QGIS, R
- **Internet-of-Things:** C/C++, Arduino, ThingSpeak and Azure IoT; Protocols & Networks: MQTT, HTTP, GSM, WiFi, LoRaWAN
- **Software Engineering:** System Analysis and Design, Agile, Scrum & Prototyping Models, Object Oriented Development
- **Web Development:** Sass, JavaScript, PHP, MySQL, Node.js, Laravel, WordPress
- **Cloud Engineering:** Git, Docker, Heroku, AWS, Microsoft Azure
- **Technical Writing & System Documentation:** Grant Proposal Writing, Research Paper Writing

## Research Interests

- Internet-of Things and Robotics
- Machine Learning
- Health Informatics
- Conservation Technology

## Work Experience

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January 2022 – March 2022

**Software Developer Intern, IoT Research Lab, @iLabAfrica**

- Under the software development team, handling application design as well as analytics for data collected by IoT powered devices.
- Implemented an end-to-end IoT based solution that applies LoRaWAN.
- Carried out code reviews and feature development on a web dashboard in Vue.js and Node.js for an ongoing research project.

May 2021 – November 2021

**Corporate IT Systems Assistant, Quantum Facilities Management**

- Part of the IT team tasked with creating and maintaining solutions that support the firm's core business processes.
- Carried out code reviews and SEO tools for the business site that significantly improved the site's navigation experience as well as overall engagement by 70%.
- Designed and built a web application in PHP and JavaScript to handle core marketing records.

June 2020 – May 2021

**Freelance Web Developer [Seasonal]**

- Designed, developed, debugged, and maintained various WordPress based applications such as e-commerce platforms, blogs, and business sites.
- Implemented and reviewed custom plugins to carry out various functions on WordPress admin panel.
- Applied techniques in SEO on a project which brought about a 50% increment of site engagement.

January 2020 – March 2020

**Software Developer, Slash Dot Labs**

- Part of the frontend development team, tasked with designing, developing, debugging, and documenting Laravel and WordPress applications.
- Carried out code reviews and debugging to revitalise internal domain registration processes.
- Served as Team Lead for a project that involved rebuilding ecommerce and retail platforms that serve 100+ customers per month; that resulted in positive end user satisfaction and development team.

## Teaching Experience

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- Information Security, Data Governance & Cloud Computing [Undergraduate]
- Introduction to Programming (C++, Python) [Undergraduate]
- Information Systems Project (Challenge-Based Learning Methodology) [Supervision: Undergraduate]
- Information Systems Project (System Development Methodology) [Supervision: Undergraduate]

## Research Experience

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- Member for a project on dissemination on nutritional information across Kenya, funded by National Research Fund [Ongoing]
- Member for a project on monitoring on illegal logging activities using sound detection techniques, funded by Climate Change AI [Ongoing]

## University Administrative Experience

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- Research Lab Co-ordinator of the Makerspace Lab, School of Computing and Engineering Sciences, Strathmore University [Ongoing]
- Committee Member for the 2022 BBIT Curriculum Review, School of Computing and Engineering Sciences, Strathmore University [2022]

## Presentations and Publications

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- 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](https://doi.org/10.1007/978-3-031-49421-5_65)
- Workshop presentation on 'Programming for IoT using Scratch on Raspberry Pi 400' for the Fundamentals of Raspberry Pi workshop held at Strathmore University on 10<sup>th</sup> November 2023.
- Vikiru, A., & Khakata, E. (2023). A Wearable Sensor System to Detect the Risk of Fireground Injuries among Firefighters. Paper presented to 5<sup>th</sup> International Symposium on Advanced Electrical and Communication Technologies, Casablanca, 15<sup>th</sup> March – 17<sup>th</sup> March.
- 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>.
- Vikiru, A., & Khakata, E. (2021). Detecting the Risk of Fireground Injuries among Firefighters using IoT. Paper presented to 6<sup>th</sup> Strathmore International Mathematics Conference, Nairobi, 28<sup>th</sup> June -2<sup>nd</sup> July.

## Competitions & Awards

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January 2024

**Innovation Summit 2024, CMU-Africa**

Co-developed and presented a fintech-based solution to address access to credit to small-holder farmers in rural Rwanda.

July 2023

**Climate Change AI Innovation Grants 2023, Climate Change AI**

Awarded a grant of USD 139500 to develop a research project titled 'Curbing Illegal Logging Practices using Sound Based Detection Techniques'

October 2021

**Africa IoT and AI Challenge, IEEE & BENYA**

Selected among the top ten projects in the Kenyan chapter. Presented a solution that implements Internet of Things technology to assist firefighters in determining the risk of sustaining fireground injuries.

June 2019

**Konica Minolta National University Contest, Express Automation**

Emerged 1st Runners Up nationally as part of a team of three; by developing a solution based on augmented reality technology, that sensitises the importance of recycling.