

I am a passionate machine learning researcher with a keen interest in the intersection of machine learning and natural language processing. My focus lies on advancing research within the fields of NLP for health/medicine and computational neuroscience.

EDUCATION

- African Institute for Mathematical Sciences (AIMS) Senegal** | MSc Machine Intelligence. 2022 – 2023
Graduate program in machine learning sponsored by Google and Meta.
- African Institute for Mathematical Sciences (AIMS) Rwanda** | MSc Mathematical Sciences. 2020 – 2021
AIMS is a pan-African network of Centers of Excellence for post-graduate training in STEM.
- Maseno University, Kenya** | BSc Applied Statistics with IT. 2014 – 2018

RESEARCH EXPERIENCE

- Exploring methods for Adapting (Large) Language Models to Low-Resource Languages.** 2022 – 2023
Advisor - Machel Reid, Research Scientist at Google DeepMind.
- Time Series Analysis of Rainfall and Temperature in Rwanda using ARIMA Model.** 2020 – 2021
Advisor - Dr. Viani Djeundje Biatat, University of Edinburgh, UK.

WORK EXPERIENCE

Chichewa NLP Project, Online | NLP Researcher. Oct 2023 – Present

- Collected, curated, and documented datasets for various NLP tasks in Chichewa.
- Fine-tuned and evaluated large language models (LLMs) for machine translation (MT) tasks.

Crossroads International, Toronto, Canada | Environment and Sustainability Advisor. Sept 2022 – April 2023

Represented Crossroads International in a collaborative mandate with the iSpace Foundation in Ghana, supported by the Global Affairs Canada (GAC) .

- Supported Crossroads International's gender equality and women empowerment programs in Ghana.
- Developed policies that support the 2021-2025 climate action agenda of the iSpace Foundation.
- Conducted training and workshops to build capacity for climate change in communities in Ghana.
- Led the iSpace Foundation's climate change research and outreach activities.

KEY SKILLS

Programming	Python and R.
Frameworks	PyTorch, HF Transformers, JAX, Scikit-Learn.
Software	STATA, SPSS, SQL, Tableau.
Tools	Bash/Zsh, Linux, \LaTeX , macOS, Microsoft Office, Windows, BrainLife (neuroimaging).
Communication	Technical writing, data visualization, scientific communication.
Languages	Swahili (native), English (fluent).

CREDENTIALS AND CERTIFICATIONS

Google Data Analytics Certificate | Coursera, online. Jan 2023

Google Project Management Certificate | Coursera, online. Dec 2022

PROJECTS

- Implementing the Hodgkin Huxley Model** | IBRO-Simons Computational Neuroscience Imbizo, Cape Town, South Africa. Jan 2024
- Decoding Hand Shapes from fMRI Data Using Different Machine Learning Models** | IBRO-Simons Computational Neuroscience Imbizo, Cape Town, South Africa. Jan 2024
- Decoding the Brain: Statistical Analysis of the Volume of the Human Hippocampus** | African Brain Data Science (ABDS), Lagos, Nigeria. Dec 2023
- Working memory RNN** | TRenD Computational Neuroscience and Machine Learning School, Accra, Ghana. June 2023

- **Paddy Disease Classification** | African Institute for Mathematical Sciences (AIMS) Senegal. August 2022
- **Prediction of COVID using DNA Sequences** | (AIMS) Senegal. July 2022
- **Neural Machine Translation (NMT) Hackathon** (1st position) | (AIMS) Senegal. June 2022

WORKSHOPS & SUMMER SCHOOLS

- IBRO-Simons Computational Neuroscience Imbizo** | Cape Town, South Africa. Jan 2024
- African Brain Data Science (ABDS) Academy** | Lagos, Nigeria. Nov – Dec 2023
- Africa Climate Summit (ACS) 2023** | Nairobi, Kenya. Sept 2023
- African Youth Climate Assembly (AYCA) 2023** | Nairobi, Kenya. Sept 2023
- TReND Computational Neuroscience and Machine Learning Summer School** | Accra, Ghana. June 2023
- International Conference on Learning Representations (ICLR) 2023 conference** | Kigali, Rwanda
(Paper accepted to ICLR 2023 Tiny Papers track). May 2023
- Keynote address by the U.S. Vice President Kamala Harris** | Black Star Gate, Ghana. March 2023
- CIMPA School on Mathematics of Climate Science** | AIMS Rwanda, Kigali. March 2023

HONOURS AND AWARDS

- IBRO-Simons Computational Neuroscience Imbizo** | Cape Town, South Africa (\$ 6000). Aug 2023
- African Brain Data Science (ABDS)** | Lagos, Nigeria. Aug 2023
- Google Conference Scholarship to attend the ICLR 2023 conference** | Kigali, Rwanda. April 2023
- Google Conference Scholarship to attend the ICLR 2023 conference** | Kigali, Rwanda. April 2023
- ICLR 2023 travel grant award to attend the ICLR conference** | Kigali, Rwanda. April 2023
- TTReND Computational Neuroscience and Machine Learning Scholarship** | Accra, Ghana. March 2023
- Google and Meta Scholarship** | AMMI-AIMS Senegal. Jan 2022
- Mastercard Foundation Scholarship** | AIMS Rwanda. Aug 2020

PUBLICATIONS

1. *Malichi, Emmanuel, Marcel Ndengo, **Stephen Kiilu**, et al. Fitting Rwanda's Currency Market Returns with the Poisson Compound Model with Normal Inverse Gaussian Jumps. Journal of Financial Risk Management 12, no. 4 (2023): 388-404.*
2. ***Stephen Kiilu**, Machel Reid. Pivot Pre-finetuning for Low Resource MT: A Case Study in Kikamba. International Conference on Learning Representations 2023. ICLR Tiny Papers track.*
3. ***Stephen Kiilu**, 2021. Time Series Analysis of Rainfall and Temperature in Rwanda using ARIMA Model.*

VOLUNTEER ACTIVITIES

- Deep Learning Curriculum Content Reviewer** | Neuromatch Academy (NMA). April – Sept 2023
- Trainer | Teacher Training Program (TTP).** June 2021

PRESENTATIONS AND TALKS

1. **Building your Career in Data Science: from scratch** | Galois Insights Limited, Kenya. March 2024
2. **Natural Language Processing(NLP) and Large Language Models (LLMs)** | Galois Insights Limited, Kenya. Aug 2023
3. **Pivot Pre-finetuning for Low Resource MT: A Case Study in Kikamba** | Poster presentation, International Conference on Learning Representations (ICLR) 2023, Rwanda. May 2023