

Dr.Kilai Mutua, Ph.D

Email: kilaimutua@gmail.com

GitHub: //sam-mutua

Sex: Male

Phone: + 254 719 749 965

LinkedIn: //mutua-kilai

Citizenship: Kenyan

Objective Statement Looking forward to engage with an institution of higher learning which provides intellectual enrichment, professional development, and personal growth, so as to become a key role player in providing sustainable solutions in Statistics & Data Science.

Research interests Statistical Modelling & Inference, Machine Learning & Data Science, Distribution Theory , Change Point Analysis, Time Series Analysis

Education **Pan African University of Basic Science & Technology** Nairobi, Kenya
PhD in Mathematics (Statistics Option) Feb 2020 – June 2023

Jomo Kenyatta University of Agriculture & Technology Nairobi, Kenya
MSc. in Applied Statistics May 2016 – Nov 2018

Jomo Kenyatta University of Agriculture & Technology Nairobi, Kenya
BSc. Statistics Jan 2012 – Nov 2015

Teaching experience **Lecturer,Department of Pure and Applied Sciences, Kirinyaga University** Jan 2024 – Present
Teaching post graduate students in MSc.Statistics and MSc. Data Science
Developing Teaching Materials
Supervising post graduate students in research activities
Initiating planning and conducting research
Development, implementation and evaluation of curricular activities in the Department
Teaching of undergraduate students statistics and programming units

Adjunct Lecturer,School of Postgraduate Studies & Research, Amoud University March 2023 – Dec 2023
Teaching post graduate students in MSc. Applied Statistics and MSc. Data Science
Developing Teaching Materials
Supervising post graduate students in research activities
Initiating planning and conducting research
Development, implementation and evaluation of curricular activities in the School

**Part time Lecturer, Department of Statistics & Actuarial Sciences
(JKUAT)**

Jan 2019 – Dec 2023

Supervision of undergraduate students

Teaching: Statistical Computing, Statistical Programming, Computer Interactive Statistics, Econometrics, Regression Modeling, Principles of Non Linear Models, Stochastic Processes, Statistics and Probability and Statistics I, Statistical Quality Control and Time Series Analysis.

**Teaching assistant, Department of Statistics & Actuarial Sciences
(JKUAT)**

Sep 2016 – Dec 2018

Assisting assigned lecturer's with instruction, records, and assignments

Preparing R practical materials

Supervising CATs and grading assignments.

Industry experience

Local Content & Capability Study, USAID Power Africa Nairobi, Kenya

Consultant Data Scientist

July 2023 – Aug 2023

Collect, clean, and validate data from various sources to ensure accuracy and reliability

Apply statistical techniques and data mining methods to identify patterns, trends, correlations, and themes in the data.

Conduct in-depth analysis of complex data sets to extract meaningful insights and present findings in a clear and concise manner.

Create comprehensive and visually appealing reports that effectively communicate data-driven insights to stakeholders.

Develop reporting templates and dashboards to automate the reporting process and enhance data visualization.

Present findings and recommendations to both technical and non-technical stakeholders in a clear and compelling manner

Act as a liaison between the data team and other departments, ensuring effective communication and alignment of objectives.

JKUAT in Collaboration with DAAD, Upscale Project Nairobi, Kenya

Data Analyst

Feb 2020 – Dec 2022

Providing technical support to the team in implementation and operationalization of tools and services provided by Push-Pull technology

Providing technical support in the programming of the questionnaire for data collection using ODK

Training the enumerators on data collection using ODK

Conduct data wrangling processes for the collected data

Implementing reproducible research methods to document workflows

JKUATES, ICT

Nairobi, Kenya

Data Analyst

Jan 2017 – Dec 2019

Performed data analysis/cleanup/management based on tree seedling production and sale with R and Python

Applied probability, estimation, hypothesis testing, experimental design and sampling to a variety of problems in survey methodology.

Analyzed all statistical data and prepared required programs

KNBS, KPHC

Nairobi, Kenya

Content Supervisor

Aug 2019

Training of Enumerators on data collection

Ensuring timely submission of collected data

Overseeing the data collection exercise.

Skills

Programming

Proficient in: R, Python, SQL.

Familiar with: MATLAB, JavaScript.

Languages

English (fluent), Swahili (fluent) , French (Beginner)

Statistics Software

STATA, SPSS, SAS

Visualization

Power BI, Tableau, QGIS

Machine Learning

Regression, Classification, Clustering, Text Mining, Topic Modeling

Database Management

MySQL, SQL

Version Control

Git, Github

Soft Skills

Excellent Communication, Adaptability, Time management, Problem Solving, Teamwork

Publications

Kilai, M., Waititu, Gichuhi A. Kibira, Wanjoya A. Alshanbari, Huda M. El-Morshedy, M. A new generalization of Gull Alpha Power Family of distributions with application to modeling COVID-19 mortality rates 2022

Results in Physics , Vol. 36 Elsevier p. 105339

Kilai, M., Gichuhi A Waititu, Wanjoya A Kibira, MM Abd El-Raouf, and Tahani A Abushal. A new versatile modification of the rayleigh distribution for modeling covid-19 mortality rates. *Results in Physics*, 35:105260, 2022.

Kilai, M., Gichuhi A Waititu, Wanjoya A Kibira, Ramy Aldallal, ME Bakr, Yusra A Tashkandy, Fathy H Riad, et al. Information approach for change point analysis of eggape distribution and application to covid- 19 data. *Mathematical Problems in Engineering*, 2022, 2022.

Kilai, M., Anthony Gichuhi Waititu, and Anthony Wanjoya. Modelling kenyan foreign exchange risk using asymmetry garch models and extreme value theory approaches. *International Journal of Data Science and Analysis*, 4(3):38, 2018.

OE Abo-Kasem, Omnia Ibrahim, Hassan M Aljohani, Eslam Hussam, **Kilai, M.**, and Ramy Aldallal. Statistical analysis based on progressive type-i censored scheme from alpha power exponential distribution with engineering and medical applications. *Journal of Mathematics*, 2022, 2022.

Ramy Aldallal, Ahmed M Gemeay, Eslam Hussam, and **Kilai, M.**. Statistical modeling for covid 19 infected patient's data in kingdom of saudi arabia. *Plos one*, 17(10):e0276688, 2022.

Ehab M Almetwally, **Kilai, M.**, and Ramy Aldallal. X-gamma lomax distribution with different applications. , 1(1):129140, 2022.

Huda M Alshanbari, Omalsad Hamood Odhah, Ehab M Almetwally, Eslam Hussam, **Kilai, M.**, and Abdal-Aziz H El-Bagoury. Novel type i half logistic burr-weibull distribution: Application to covid-19 data. *Computational and Mathematical Methods in Medicine*, 2022, 2022.

Saieed F Ateya, Randa Alharbi, **Kilai, M.**, and Ramy Aldallal. Classical and bayesian inference under burr-x distribution based on new unified progressive hybrid censoring scheme with engineering applications. *Journal of Mathematics*, 2022, 2022.

Saieed F Ateya, **Kilai, M.**, and Ramy Aldallal. Estimation using suggested em algorithm based on progressively type-ii censored samples from a finite mixture of truncated type-i generalized logistic distributions with an application. *Mathematical Problems in Engineering*, 2022, 2022.

Adnan Bashir, Muhammad Ahmed Shehzad, Aamna Khan, Muhammad Nabeel Asghar, Muhammad Aslam, Ramy Aldallal, **Kilai, M.**, and Mohamed S Mohamed. Response surface models using the wavelet technique for reservoir inflow prediction. *Mathematical Problems in Engineering*, 2022, 2022.

Muhammad Farooq, Qamruz Zaman, Muhammad Ijaz, Said Farooq Shah, and **Kilai, M.**. A novel approach to increase the goodness of fits with an application to real and simulated data sets. *Mathematical Problems in Engineering*, 2021:1-11, 2021.

AM Gadallah, BI Mohammed, Abdulhakim A Al-Babtain, Saima Khan Khosa, **Kilai, M.**, M Yusuf, and ME Bakr. Modeling various survival distributions using a nonparametric hypothesis testing based on laplace transform approach with some real applications. *Computational and Mathematical Methods in Medicine*, 2022, 2022.

Hazar A Khogeer, Amani Alrumayh, MM Abd El-Raouf, **Kilai, M.**, and Ramy Aldallal. Exponentiated gull alpha exponential distribution with application to covid-19 data. *Journal of Mathematics*, 2022, 2022.

Damaris Felistus Mulwa and **Kilai, M.**. Estimation of finite population mean under model based approach using auxiliary variables.

Lena Anyango Onyango, Anthony Gichuhi Waititu, Thomas Mageto, and **Kilai, M.**. A hybrid classification model of artificial neural network and non linear kernel support vector machine. *International Journal of Data Science and Analysis*, 8(2):47-58, 2022.

Hina Tabassum, Muhammad Mutahir Iqbal, Muhammad Ahmed Shehzad, Nabeel Asghar, Mohammed Yusuf, **Kilai, M.**, Ramay Aldallal, et al. Supervised ml algorithms in the high dimensional applications for dimension reduction. *Mathematical Problems in Engineering*, 2022, 2022.

Peer Review

Alexandria Engineering Journal
Journal of Mathematics Hindawi Publishing Group

R Packages

NovelDistns
rKenyaForex
AHSurv

Professional Associations

Kenya National Statistical Society

Africa R Consortium Group
Nairobi R Group

Referees

Prof. Anthony Waititu Gichuhi
Dean, School of Mathematical and Physical Sciences JKUAT.
Phone Number: 0704447775.
Email: agwaititu@gmail.com

Dr. Anthony Wanjoya
Senior Lecturer, Department of Statistics and Actuarial Sciences JKUAT
Phone Number: 0722336139
Email: awanjoya@gmail.com

Dr. Francis Kangure
Senior Director – Cross-Cutting Units
Power Africa Empowering East & Central Africa (EECA)
RTI International, Power Africa Contractor
Phone Number: 0722956148
Email: fkangure14@gmail.com