

## KENNEDY MWAI WAMBUI

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### Education background:

- ❖ **Jan 2018 – Current:** Ph.D. Student on statistical modelling and systems serology on Analytical frameworks for studies of correlates of protection against Plasmodium falciparum using machine learning approaches.
- ❖ **Jan 2016 – July 2017:** MSc Epidemiology (Biostatistics) University of the Witwatersrand.
- ❖ **October 2008 – April 2012:** Second Class Honours Upper Division in BSc. Mathematics and Computer Science – specialization in Statistics, Jomo Kenyatta University of Agriculture and Technology (JKUAT).
- ❖ **June 2007 – Sept 2007:** St Teresa IT Centre Certificate in Information Technology.
- ❖ **Feb 2002 – November 2006:** Kenya Certificate of Secondary Education in Chinga Boys High School.

### Professional qualifications:

- ❖ Natural Language Processing with Classification and Vector Spaces by [DeepLearning.AI](#) (Jan 2021)
- ❖ Introduction to Deep Learning and Text Mining with Tidy Data Principles training during Symposium on Data Science and Statistics ([SDSS](#) 2019).
- ❖ **April 2014 – June 2015:** Data Science Specialization: Johns Hopkins University's offering. Some of the course outputs are [here](#).
- ❖ November 2013: Data Management for Clinical Research offering by Vanderbilt University at [coursera.org](#).
- ❖ **Feb 2008 -Jan 2009:** Certificate in Web Design and Development in Nairobi's Digital Design School.
- ❖ Data Analysis Certificate course from the Johns Hopkins University's offer at [coursera.org](#).
- ❖ Computing for data analysis course from the Johns Hopkins University's offer at [coursera.org](#).
- ❖ Research Ethics Training from Family Health International.

### Professional memberships:

- ❖ [Statistics without Borders](#)(SWB) Outreach Group of the American Statistical Association member since 2017.
- ❖ [International Biometric Society](#) (IBS) member since 2017.
- ❖ [South African Statistical Association](#) (SASA) Member since 2017.
- ❖ Epidemiology and Biostatistics Society of Kenya (EBSOK) member since 2020.

### Experience:

- ❖ **Jan 2018:** Biostatistician and Ph.D. Studentship.  
Duties and Responsibilities:
  - ✓ Identifying correlates of disease protection using supervised machine learning approaches.
  - ✓ Data science training utilizing R and RStudio.
- ❖ **September 2019:** Data Science Consultant: The World Bank Group, Pretoria Office South Africa.  
Duties and Responsibilities:
  - ✓ Data monitoring using reproducible dashboards for Youth Employment Service (YES) project.
  - ✓ Building tools for interactive data management for YES project linking 4 national surveys.
  - ✓ Building automated data reports tools for the Youth Employment Service project.
- ❖ **Jan 2017 –Dec 2017** Biostatistician consultant KEMRI-Wellcome Trust Kilifi, Bioscience Department  
Duties and Responsibilities:
  - ✓ Creating a malaria multi-centre study analysis pipeline.
  - ✓ Performing dose-response analyses with 5-Parameter Logistic Regression in R.
  - ✓ Create an interactive dashboard (Shiny) for the coefficient of variations for antigen dose responses.
- ❖ **Oct 2016 –July 2017:** Statistician Consultant, Wits Health Research Office.  
Duties and Responsibilities:
  - ✓ Supporting the faculty with data analysis.
  - ✓ Assist in statistical analysis plan for students in Faculty of Health Sciences.
  - ✓ Statistical training and workshops in the Faculty of Health Sciences.
- ❖ **Jan 2013 – Dec 2015:** Clinical data analyst at KEMRI-Wellcome Trust Research Programme (KWTRP), Kilifi (<http://www.kemri-wellcome.org>).  
Duties and Responsibilities:
  - ✓ Data analysis and modelling using STATA, R and RStudio.
  - ✓ R and RStudio trainings for health research.
  - ✓ Design and implement a data repository and dashboards (Shiny) for clinical research data.
  - ✓ Manage retrieval and reporting of research data from MySQL using Shiny.
  - ✓ Produce data cleaning and quality assurance plans for Programme data in compliance with national and international regulatory standards.
- ❖ **August 2012- Nov 2012:** Data manager consultant for the Ministry of Health Kenya Workers Mapping Survey with Intrahealth International (<http://www.intrahealth.org/page/kenya>).

#### Duties and Responsibilities:

- ✓ Data monitoring submitted from different health facilities in Kenya.
- ✓ Manipulating, cleansing & processing submitted data using STATA and Excel.
- ✓ Mobile phone data collection tool development, training, and supervision.
- ❖ **July 2012:** Research Assistant at the HFG Kenya (PATH) Huru project ([www.hivfreeregeneration.org](http://www.hivfreeregeneration.org)).

#### Duties and Responsibilities:

- ✓ Data entry using CS Pro.
- ✓ Managing the data collection process.
- ✓ Manipulating, cleansing & processing entered data using SPSS.
- ❖ **May 2012 to June 2012:** Research assistant at the [Population Council](#) Shuga baseline survey in Nairobi and Rift Valley Regions in Kenya.

#### Duties and Responsibilities:

- ✓ Data collection using PDA's.
  - ✓ Prepare a report on the collected data to the supervisor.
  - ❖ **May 2011 – September 2011:** [Population Council](#) (RHV and Integra Program) attaché.
- #### Duties and Responsibilities
- ✓ Qualitative and quantitative data analysis using Stata, Nvivo, and Excel.
  - ✓ Mobile phone data collection tool build for Uganda RH vouchers and Kibera alcohol surveys.
  - ✓ Generating Maps for the Kibera Alcohol Survey.

#### **Pro-bono data-science activities:**

- ❖ **Member of the statistics without borders** - an organization of volunteers that provide pro bono statistical consulting and assistance to organizations or governments to help deal with health issues.
- ❖ **World Health Organisation (WHO) and Whole of Syria Health Cluster – Feb 2018 to March 2018.**  
Provided R language programming support to Whole of Syria Health Cluster for coordination mechanism to provide emergency and trauma care as well as basic health provision.

#### **Computing and Capacity building Repositories:**

- ❖ protGear: A package for protein micro-array data processing just before the main analysis, [GitHub link](#)
- ❖ Introduction to R short course; [GitHub link](#)
- ❖ Data wrangling using Python – [GitHub link](#)
- ❖ Attributable fractions and spatial models in R – [GitHub link](#)
- ❖ Introduction to Statistical Methods using R and RStudio – [GitHub link](#)

#### **Journal and Conference Articles**

- ❖ **Kennedy Mwai**, Nelson Kibinge, James Tuju et al.; protGear: A protein microarray data pre-processing suite
- ❖ Karamoko Niare, Timothy Chege, **Kennedy Mwai**, et al.; Systematic Serological Diversity of a Putative Malaria Vaccine Candidate and Broad Protection.
- ❖ Yman V, Tuju J, White M T, Kamuyu G, **Mwai K**, et al.; Distinct kinetics in antibody responses to 111 Plasmodium falciparum antigens identifies novel serological markers of recent malaria exposure.
- ❖ **Kelvin M. Abuga, John Muthii Muriuki, Sophie M. Uyoga, Kennedy Mwai, et al.**; Hepcidin regulation in Kenyan children with severe malaria and non-typhoidal Salmonella bacteremia
- ❖ **Wambui, Kennedy Mwai** and Musenge, Eustasius; A space-time analysis of recurrent malnutrition-related hospitalizations in Kilifi, Kenya for children under-5 years.
- ❖ Muthui, M. K., Mogeni, P., **Mwai, K.** et al. Gametocyte carriage in an era of changing malaria epidemiology: A 19-year analysis of a malaria longitudinal cohort.
- ❖ Kamuyu, Gathoni, and Tuju, James and Kimathi, Rinter and **Mwai, Kennedy** et al.; KILchip v1. 0: A novel Plasmodium falciparum merozoite protein microarray to facilitate malaria vaccine candidate prioritization <https://doi.org/10.3389/fimmu.2018.02866>.
- ❖ **Kennedy Mwai**, Nelson Kibinge Ph.D., et al (2018) protGear: A tool for protein microarray data pre-processing: The [TIBA](#) general meeting 2018 and [IDeal](#) Conference 2018.
- ❖ 4<sup>th</sup> -7<sup>th</sup> July 2017 Spatial Statistics 2017: One World: One Health **K. Mwai**, Prof. J. Berkley, E. Musenge (Ph.D.) Poster on Space-time patterns of child morbidity attributable to malnutrition in Kilifi County in 2002- 2015, Kenya
- ❖ 3<sup>rd</sup> – 5<sup>th</sup> July 2017 DELTAS-Africa Conference 2017 **K. Mwai**, Prof. J. Berkley, E. Musenge (Ph.D.) Poster and Talk on Oedema and wasting related morbidity in children: A space-time-based analysis.
- ❖ 27<sup>th</sup> – 31<sup>st</sup> March 2017 AFREA 2017 Conference Overall Poster Winner: **K Mwai**, A Thairu, T Mwangi, G Fegan (2017) Cost-effectiveness of reproducible statistical computing in Epidemiology and evaluation.
- ❖ Mogeni P, Williams TN, Fegan G, Nyundo C, Bauni E, **Mwai K**, et al. (2016) *Age, Spatial, and Temporal Variations in Hospital Admissions with Malaria in Kilifi County, Kenya: A 25-Year Longitudinal Observational Study*. *PLoS Med* 13(6): e1002047. doi:10.1371/journal.pmed.1002047.

- ❖ E Musenge; G Chidumwa, F Mwingirwa, J Kaunda, **KM Wambui** (2016) *Poster on Modelling Child Growth Indicators: A multidimensional and Bayesian-based Approach: The Epidemiological Transition Royal Society of Tropical Medicine and Hygiene Conference Nairobi Kenya.*
- ❖ **KM Wambui**; E Musenge (2016) *Poster on A Bayesian geo-additive approach on spatial clustering nature of HIV/AIDS prevalence and its associated factors in Lesotho in 2014.*
- ❖ 30<sup>th</sup> June – 3<sup>rd</sup> July 2017 **K Mwai**, A Thairu, T Mwangi, G Fegan (2015) *Poster on Reproducible Statistics course for the future, from Stata to R, Conference: useR! 2015, At Aalborg, Denmark DOI: 10.6084/m9.figshare.1471625.*

#### Forums and Seminars:

- ❖ Software Packages for Data Science 15-minute contributed presentation at Symposium on Data Science and Statistics in Bellevue, Washington 2019.
- ❖ Attended the 6th IBS Channel Network Conference 2017 in uHasselt Belgium on Bayesian Models.
- ❖ Poster presentation – useR! 2015 conference on [Reproducible Statistics course for the future, from Stata to R.](#)
- ❖ **October 2012** – Training the Ministry of Health and Capacity Kenya Research assistants on Mobile Data collection tools.
- ❖ **29<sup>th</sup> August 2012:** [Wireless Wednesday](#) showcase of the Soko Huru App.
- ❖ **October 2011:** Two days GKenya Google Conference (Nairobi, Kenya).
- ❖ **June 2011:** Random Hack of Kindness, Nairobi Kenya ( <https://www.rhok.org> ).
- ❖ **September 2010:** Two days GKenya Google Conference (Strathmore University, Kenya).

#### Grants and awards won:

- ❖ £3500 [Ideal](#) Conference 2018 best poster international travel award.
- ❖ [Tiba](#) International travel award 2018 for the best poster prize.
- ❖ Approximately £10,000 PhD award to develop statistical models and systems serology frameworks for studies of correlates of protection against Plasmodium falciparum.
- ❖ IBS Travel grant 2017 worth \$1500