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Nationality: Kenyan

Date of Birth: 19 October 1974

Gender: Male

Education Background

1. **2012:** Postdoc Studies (Biostatistics), SLU Uppsala, Sweden and KEMRI-Wellcome Trust, Kilifi, Kenya.
2. **2008 - 2011:** PhD (Biostatistics), Technical University of Munich, Arcistrasse 21, 80333 Munich (Germany).
3. **2001 - 2003:** Master of Science (Biostatistics). University of Nairobi, School of Mathematics, CBPS, Box 30197-00100 Nairobi (Kenya)
4. **1993 - 1997:** Bachelor of Education Arts (Mathematics), University of Nairobi, Box 30197-00100, Nairobi (Kenya)
5. **1988 - 1991:** Kenya Certificate of Secondary Education, High School. Ndenga Secondary School, Box 379 Ukwala, Kenya.

Work Experience

1. July 29, 2014- to date: Senior Lecturer (Statistics / Biostatistics), School of Mathematics, University of Nairobi, Box 30197-00100 Nairobi, Kenya.
2. November 25, 2011-July 29, 2014: Lecturer (Statistics / Biostatistics), School of Mathematics, University of Nairobi, Box 30197-00100 Nairobi, Kenya.

3. 29 September 2004- November 25, 2011: Tutorial Fellow, School of Mathematics, University of Nairobi, Box 30197-00100 Nairobi, Kenya.
4. 01 January 1998 - 28 September 2004: High School and Polytechnic Mathematics Teacher, Teachers Service Commission (TSC), Private Bag Nairobi (Kenya)

Publications

1. Muchene, E.K. and Onyango, N.O. (Accepted, 2015. To appear). Analysis of KCSE performance in Nakuru County: a generalized estimating equations approach. *Journal of Applied Mathematics*.
2. Orowe, I., Weke, P., Ottieno, J., and Onyango, N. O. (2015). Multistate Modelling Vertical Transmission and Determination of R_0 Using Transition Intensities. *HIKARI Applied Mathematical Sciences*, Vol. 9, 2015, no. 79, 3941 – 3956. <http://dx.doi.org/10.12988/ams.2015.52130>
3. Otieno, S.A., Wamalwa, B.M., Onyango, N.O, Ottieno, J. and Ongoma, V., (2015). Comparison of least absolute shrinkage and selection operator and maximum likelihood estimators to establish determinants of immunization in Trans-nzoia county. *Journal of Social and Economic Statistics*, Vol 4, no. 1, 30 – 45.
4. Onyango Nelson O., Mueller Johannes (2014). Determination of optimal vaccination strategies using an orbital stability threshold from periodically driven systems. *Journal of Mathematical Biology*, Vol. 68: 3, pp763-784. [DOI 10.1007/s00285-013-0648-8](http://dx.doi.org/10.1007/s00285-013-0648-8)
5. Onyango, N.O. (2014) Multiple endemic solutions in an epidemic Hepatitis B model without vertical transmission. *Applied Mathematics*, vol. 5 (16), 2518-2529. <http://dx.doi.org/10.4236/am.2014.516242>
6. Onyango Nelson O., Mueller Johannes and Muindi Stephen (2013). Optimal vaccination strategies in an SIR epidemic model with time scales. *Applied Mathematics*, vol.4, 11B, pp1-14. <http://dx.doi.org/10.4236/am.2013.410A2001>.

7. Owuor Nelson (2011). Epidemiology of Childhood Related Diseases: Optimal Control and Stability Analysis, PhD Thesis, Technical University of Munich, Munich, Germany.
8. Owuor, Nelson (2010). Optimal vaccination strategies in periodic settings and threshold conditions: A Survey. *International Journal of Biomathematics and Biostatistics*, vol. 1(2): pp 193-201.
9. Owuor, Nelson (2010), *The Theory and Practice of Mixed Modeling*. VDM-Verlag Dr. Mueller, Saarbrucken / Mauritius.
10. Owuor Nelson (2009). On the lmer function for nested animal breeding data, *CSBIGS*, vol. 4(1): pp 44-58.
11. Owuor Nelson, Achia Thomas and Ndumu D.B. (2007), Case Study 2: Identification of Elite Ankole Cattle in a Herd Monitoring Study in Uganda. In: Rowlands John (Eds), *Biometrics and Research Methods Teaching Resource Version 1-CD-ROM*. ILRI, Kenya.
12. Owuor Nelson, (2003), Identification and Characterization of Elite Performing Ankole Cattle for Milk Production: A Case Study on Multi-level mixed modelling using GENSTAT. M.Sc. Thesis, University of Nairobi, Kenya.
13. Onyango, N.O, Omony, J. and Otieno C.O. (manuscript-2015). Examining association between Respiratory Syncytial Virus and Coronavirus in humans: A case of non-proportional hazards in survival data. *Biostatistics*.

Recent Seminars and Workshops attended

1. 5th September 2015 – 12th September 2015: Guest research visit: Centre for Mathematical Sciences, Technical University of Munich. Presented a talk entitled, “Modeling Interactions between Respirator Tract Infections.”
2. 30th August 2015 – 5th September 2015: Mathematical and Computational **Epidemiology** of Infectious diseases Workshop, Erice Italy, 2015.

3. 20th – 31st July 2015: Mathematical Modelling and Analysis of Complex Systems. CIMPA school Kenya 2015, Naivasha Kenya.
4. 25th May 2015 – 27th May 2015: Introduction to Mathematical Modelling at the KEMRI - CENTER FOR DISEASE CONTROL, NAIROBI, KENYA.
5. International Strathmore Mathematical Epidemiology (ISME-2014) workshop, 1-6 September 2014
6. East African TechnoMath Modelling Week, University of Dar-Es-Saalam, Tanzania. 11-15 August 2014.
7. Alexander Von Humboldt Colloquium, “The Power of Excellence in Science – Enhancing Academia Capacities in Africa” Safari Park Hotel, Nairobi, Kenya, 6-8 March 2014.
8. First Africa Young Academies Regional Conference, 3-5 February 2014 in Nairobi, Kenya.
9. 2nd Strathmore International Conference in Mathematics, 2013.
10. Uppsala University yearly meeting of statisticians (“Upp - Upp”), Ekonomikum Campus, Uppsala University, Uppsala Sweden. March 7, 2012.
11. Analysis of High-Dimensional Data. Jönköping International Business School, Jönköping, Sweden. February, 16-17, 2012.
12. Strathmore International Mathematics Research Meeting from July 23-27-2012.

Specialized Training Courses attended

1. INLA spatial statistics course, KEMRI-Wellcome Trust Kilifi, October 3-5, 2013.
2. A 3 weeks Advanced Health Research Methods Course at the School of Medicine, University of Nairobi, from 29th October - 16th November, 2012.
3. Advanced Research Methodology Workshop: Epidemic Modelling Workshop, from 1st-12th August 2011, (Kenya Free of AIDS project), Workshop at the school of Computing, University of Nairobi. Theme of workshop: Mathematical Modelling of disease infections using STELLA software.

4. C++ Training Workshop at the International Livestock Research Institute-Nairobi, Kenya from 1st to 2nd September 2011.

External examination and postgraduate student supervision

a) External Examiner (Master's Thesis Examination):

- Dorothy Manonza (September, 2015, University of Dar Es Salaam, Tanzania).
Examined Master's thesis entitled, "Modeling Hepatitis B virus Vertical Transmission. Implications of Treatment Strategy."
- Juma Mtababa (September, 2015, University of Dar Es Salaam, Tanzania).
Examined a Master's Thesis entitled, "Mathematical Modeling of the Impacts of Vaccination and Treatment on the Transmission Dynamics of Genital Herpes."
- Mwanazila Salim Ali (April, 2015, University of Dar Es Salaam, Tanzania).
Examined Master's thesis entitled, "Modeling the Impact of Street Children on the Transmission Dynamics of HIV/AIDS."
- Khamis A. Mohamed (January 2015, University of Dar Es Salaam, Tanzania).
Examined a Master's Thesis entitled, "Modelling of Rubella Dynamics in the presence of Vaccination and Treatment."
- Abdul Madodi (January 2015, University of Dar Es Salaam, Tanzania).
Examined a Master's thesis entitled, "Modeling the Role of Long Distance Truck Drivers on HIV Transmission Dynamics."

b) External Examiner, PhD.

PhD Proposal Thesis Examination:

- Maureen Akoth (December 17, 2014), Strathmore University, Kenya. Member of Board of Examiners for PhD proposal presentation entitled, "A model based genetic association testing in Malaria."
- **2014-2017:** Member of the student advisory committee for the PhD of Mr. John Ojal, London School of Hygiene and Tropical Medicine and KEMRI-Wellcome Trust, Kenya.

PhD final defense examination

- May 14, 2014: External examiner in the PhD defence of Dr. Rachel Waema Mbogo, Strathmore University, thesis entitled, "Intra-Host stochastic models for HIV dynamics and management."
- Internal Examiner in the PhD final defense examination (University of Nairobi, Kenya) of **Dr. Kiroboto B. Zangoti - I80/80621/2011** (May, 2015). Examine the **PhD thesis** entitled, "Energy Balance Mathematical Model on Climate Change."

c) Internal Examiner, Board member of Masters Examining Committees (School of Biological Sciences, University of Nairobi, Kenya)

- Albert Otieno Owino - I56/64572/2010 (1st October, 2014): Internal Examiner for thesis entitled, "Effect of Temperature on the Life History traits of *Liriomiza Trifoli Burgess*."
- Darlyn Nyaboke Ayonga - I56/68813/2011 (November 12, 2014): Internal Examiner for thesis entitled, "Efficacy of Schitozim - A Herbal Medicine in the Treatment of Balb/C Mice Experimentally Infected with *Schistosoma Mansoni*."

Postgraduate student supervision and examination.

2015 – 2018: Supervisor of the PhD Thesis of Mr. Eric Kuria Wamiti. Title of the thesis: Application of Bayesian Inference in Geostatistics for Improving Estimates of Aerial Rainfall.

2015 (Masters completed):

1. Polycap O. Otieno, Reg. I56/70521/2013 (Msc Social Statistics): Application of Linear Mixed Effects Models on Hierarchical Data. (KCPE Examination Scores).
2. Mwangi J. Muthii, Reg. I56/68336/2013 (Msc Social Statistics): Predicting Students Loan Default in Kenya. Fisher's Discriminant Analysis Approach.
3. Demissew T.G., Reg. I56/69903/2013 (Msc Biometry): Modeling and Projection of HIV/AIDS epidemics in Ethiopia using ARIMA.
4. Arthur M.Y., Reg. I56/70003/2013 (Msc Biometry): Application of Mixed Effects Modeling approach in Tree Height Prediction Models.
5. Moses M. Owana, Reg. I56/68809/2011 (Msc Social Statistics): Analysing Factors in ICT Integration among Staff in Tertiary Academic Institutions.
6. Elvis Karanja Muchene, Reg. I56/67573/2013 (Msc Social Statistics). An analysis of KCPE performance in Nakuru County. A GEE approach.

2014 (Masters completed):

1. Chebet Sharon, Reg. No. I56/60588/2013 (MSc Biometry). An assessment of quality of life of breast cancer patients using Principal Component Analysis.
2. Sheila Otieno, Reg. No. I56/83959/2012 (MSc Social Statistics). Advantage of the Shrinkage estimator in establishing the main determinants of immunization in Trans-Nzoia county, Kenya.
3. Daniel Ngari Kiirithio, Reg. No. I56/80521/2012 (MSc Biometry). A Statistical Method for Analysis Data from National Systems of Innovation Surveys.
4. Abas Ali Tifow, Reg. No. I56/79298/2012 (MSc Social Statistics). Modeling the key determinants of child labour in Somalia.

2013 (masters completed):

1. Geoffrey Arunga. Reg. no. I56/68510/2011 (MSc Biometry). Estimating Effectiveness of Influenza Vaccine used in a Vaccine Observational Study using Paired Time to Event Data.
2. Eric Okuto. Reg. no. I56/68975/2011 (MSc Biometry). Bayesian Spatial and Spatio-Temporal Modeling.
3. Wycliffe Ochomba Reg. no. I56/68820/2011 (MSc Applied Maths) Model of Malaria with Temporary Immunity.
4. Margaret Ndisha. Reg. no. I56/68705/2011 (MSc Biometry). Modelling Determinants of Mortality for Retirees in Kenya using Cox-PH Model.
5. Chrispine Otieno. Reg. no. I56/74041/2011 (MSc Biometry). Dealing with Non Proportional Hazards in Survival Data.
6. Alphan Muthami Reg. No. I56/68777/2011 (MSc Social Statistics). Determinants of Child Mortality in Kenya: Stratified Cox Proportional Hazards Model.
7. Alphonse Owende Omolo. Reg. No. I56/60589/2011 (MSc Social Statistics). Identifying Indicators of Child Mortality using Factor Analysis Method. A Case Study in Abduwak District in Central Somalia.
8. Teresa Nyatuka Oino. Reg. No. I56/68738/2011 (MSc Social Statistics). Multiple Linear Regression Approach to Modelling Determinants of Profitability of Life Insurance Companies in Kenya.

2012 (masters completed):

9. Akinyi Joyce. Reg. no. I56/60888/2010 (MSc Social Statistics): Multivariate Data Reduction: A case study on latent determinants of sexual HIV risk among female commercial sex workers in Kisumu.

2011 (masters completed):

10. Linda Chaba. Reg no. I56/77435/2009 (MSc Thesis, 2011): Modeling of STI prevalence among HIV-infected Adults in HIV Care Programs in Kenya using logistic regression.
11. Collins Odhiambo Ojwang (MSc Thesis, 2011): Longitudinal Analysis of Incidence, Risk Factors and Outcomes among TB/HIV co-infected Children.

Consultancy Work

1. **Project Title:** Sub-Saharan Africa Advanced Training Program for Leadership and Excellence in Biostatistics. **Funded** by Wellcome Trust, UK. The project team is a consortium of African Universities and select European Universities, with the aim of spearheading Masters and PhD training in Biostatistics. **Team Leader.** Prof. Chirwa Tobias (University of Witwatersrand, South Africa). Team members (Kenya): Prof. Patrick Weke and Dr. Nelson Owuor Onyango. **DATES: 2015 – 2020 (ONGOING).**
2. **Project Title:** Pilot project on the use of mobile technologies for data collection in Kenya. **Client:** UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA (UNECA). Partnership between Kenya National Bureau of Statistics and School of Mathematics, University of Nairobi. **Team Leaders:** Prof. Patrick Weke (SOM-UON) and Mr. Zachary Mwangi Chege (KNBS). **Investigators: Prof. Manene Moses, Dr. Nelson Owuor, Dr. Muhua George, Mr. Evans Munene, among others.** Dates: **January – June 2015 (PROJECT COMPLETED)**
3. **Project Title:** Pilot Project on Global Fuel Economy Initiative (GFEI). **Client:** ENERGY REGULATION COMMISSION OF KENYA (ERC) and UNITED NATIONS ENVIRONMENTAL PROGRAM (UNEP). **Team leader:** Dr. Ayub Gitau (Engineer). **Team Members:** Prof. James Nyang'aya (Mechanical

Engineer/Automotive studies), Dr. Eric Aligula (Economist), Dr. Nelson Owuor (Statistician), Mr. Tirimba Machogu (Environmental Lawyer). **Dates:** June 2013 - June 2014. **Place:** Energy Regulation Commission (ERC) and UNEP, Nairobi Kenya. *COMPLETED*

4. **Project Title:** Kenya National Innovation Survey Training. **Client:** UNITED NATIONS INNOVATIONS AND DEVELOPMENT ORGANIZATION (UNIDO) AND OFFICE OF THE DVC, RESEARCH PRODUCTION AND EXTENSION, UNIVERSITY OF NAIROBI. **Team Leader:** Professor Moses Manene (Statistician). **Team members:** DR. Isaac Kipchirchir (Statistician), Dr. Joseph Ivivi Mwaniki (Statistician), Dr. Owuor Nelson (Statistician), Ms. Caroline Ogutu (Statistician). **Dates:** July-September, 2013. **Venue:** Nairobi, Kenya. *COMPLETED.*

5. **Project Title:** Feasibility study on Devolving Insurance Regulatory Authority (IRA) Services to the Counties. **Client:** INSURANCE REGULATORY AUTHORITY, KENYA. **Team leader:** Prof. Patrick Weke. **Team Members:** Prof. Manene Moses, Dr. Ivivi Mwaniki and Dr. Owuor Nelson. (Statisticians). **Dates:** April-June 2014. *STATUS: COMPLETED*

6. **Title:** Quantifying protective immunity correlates for respiratory syncytial virus. **Client:** KEMRI WELLCOME TRUST AND PATH INTERNATIONAL. **Project leader:** JOYCE U. NYIRO, KEMRI CGMRC, Kilifi (Principal investigator). **Project Partners:** Prof. James Nokes (Demographer), KEMRI CGMRC, Kilifi; Mr. Patrick Munywoki (Biostatistician), KEMRI CGMRC, Kilifi; Mr. Charles Sande (Immunologist), KEMRI CGMRC, Kilifi; Ms. Patience Kiyuka (Lab Technician), KEMRI CGMRC, Kilifi; Mr. Martin Mutunga (Nurse), KEMRI CGMRC, Kilifi; Prof. Anthony Scott (Medical Doctor), KEMRI CGMRC, Kilifi; Dr. Nelson Owuor Onyango (Statistician), KEMRI CGMRC, Kilifi. **Dates:** 2012-2013. **Place:** KILIFI KENYA. *ONGOING*

7. **Project Title:** Development of Biometrics and Research Methods Teaching Resource. **Client:** INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE (ILRI). **Team Leader:** DR. JOHN ROWLANDS (International Livestock Research Institute, Nairobi, Kenya). **Project Partners:** Dr. Achia Thomas (Statistician), Ms. Damaris Yobera (Statistician) and Dr. Rosemary Nguti (Statistician), Mr Owuor Nelson (Statistician), Mr. Esekun Eyangang. **Period:** 2006-2008. **Place:** Nairobi, KENYA. *COMPLETED*

Academic Awards and Scholarships Grants

1. ISP Postdoctoral award at SL University-Uppsala, Sweden, (February 2012 - May 2012).
2. DAAD award for PhD studies at the Technical University of Munich Germany, (April 2008-April 2011).
3. International Science Program (ISP) fellowship, SL University-Uppsala, Sweden, July 2008.
4. Higher Education Loans Board award: Masters Studies (2001-2003).
5. Best student at primary and secondary school National Examinations.

Courses taught at University Level

Current Teaching Courses:

1. Postgraduate Classes:
 - a) Statistical Inference
 - b) Statistical Data Analysis and Management.
 - c) Design of Clinical Trials
 - d) Epidemiology
 - e) Survival Data Analysis,
 - f) Time Series Analysis, among others.

2. Undergraduate Classes:

- a) Probability and Statistics
- b) Test of Hypothesis
- c) Time Series Analysis
- d) Non-parametric statistics
- e) Design and Analysis of Experiments, among others.

Referees

Prof. Dr. Johannes Mueller

Technical University of Munich, Centre for Mathematical Sciences,

Unit M12, Botzmannstr. 3, 85747 Garching, Munich, Germany.

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Dr. Anthony Wanjoya Kibera

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Certification

I certify that the information in my Curriculum Vitae is correct to the best of my knowledge.

Dr. Nelson Owuor Onyango.