

RONALD WESONGA (PhD)

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Researcher Profile

Scopus AuthorID: <https://orcid.org/0000-0003-4887-9088>
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Research gate https://www.researchgate.net/profile/Ronald_Wesonga
Publons <https://publons.com/researcher/1266830/ronald-wesonga/peer-review/>

Academic Degrees

2006 – 2009 **PhD Statistics**, Makerere University, Kampala, Uganda.
Thesis: *Stochastic Optimization Models for Air Traffic Flow Management*.
Supervisor: Prof. Peter Jehopio, Prof. Xavier Mugisha & Prof. Venancius Baryamureeba.
1997 – 1999 **Master of Statistics**, Makerere University, Kampala, Uganda. Thesis:
Computerized Package for Parameter Estimation under Systematic Sampling Theory. Supervisor: Dr. P. Kathuria & Dr. Peter Jegrace Jehopio
1991 – 1994 **BSc Statistics**, Makerere University, Kampala, Uganda. Dissertation:
Students' Results Management and Analysis System. Supervisor: Dr. Peter Jegrace Jehopio

Current PhD Supervision

1. **The missing data problem** with the objective to develop statistical models to reduce bias in model parameter estimation using EM and Priors with applications.
2. **The misclassification problem** with the objective to develop statistical models to minimize misclassification errors in multivariate models with applications.
3. **The machine learning problem** with the objective to develop machine learning models to predict malaria incidence and prevalence.
4. **The estimation problem** with the objective to examine the link functions for the generalized linear model for count and categorical data with applications.

Academic Positions

2017 - To date	Associate Professor, <i>Sultan Qaboos University, Muscat, Oman</i>
2010 - 2017	Senior Lecturer, <i>Makerere University, Kampala, Uganda</i>
2000 - 2010	Lecturer, <i>Makerere University, Kampala, Uganda</i>
1995 - 1999	Lecturer, <i>Islamic University In Uganda, Mbale, Uganda</i>

Academic Professional Associations

Member Royal Statistical Society (RSS) United Kingdom

Member International Statistical Institute (ISI)

Member International Association for Statistical Computing (IASC)

Member Uganda Statistical Society (USS)

Book Chapter

Wesonga, R., Guwatudde, D., Bahendeka, S., Mutungi, G., Nabugoomu, F., Owino A. (2019) Demographic Data Analytics and Visualisation: Focus on Hypertension and Cumulative Risk Factors for Non-Communicable Diseases in Uganda (**pp. 66-87**). Kampala, Uganda Fountain Publishers

Statistical Reports

Wesonga, R., et. al. (2015) Non-Communicable Diseases Diseases in Uganda, 2014, Baseline Survey Report.

https://www.who.int/ncds/surveillance/steps/Uganda_2014_STEPS_Report.pdf

Wesonga, R., et. al. (2015) Uganda National Governance Baseline Survey Report.

https://www.ug.undp.org/content/uganda/en/home/library/democratic_governance/uganda-governance-baseline-survey-report-2014.html

Wesonga, R., et. al. (2018) 2017 National Governance, Peace and Security Survey Report.https://www.ubos.org/wp-content/uploads/2018/07/The_GPSS_Report_2017_12_7_2018.pdf

Academic Work & Research Experience

1. **[Statistician]** Advisory committee on the national research team for the Non Communicable Diseases in Uganda.
2. **[Statistician]** Developed Gender Equality Statistical Needs and Related Indicators in collaboration with the Uganda Bureau of Statistics.
3. **[Statistician]** Advisory Committee on the Gender Statistics Capacity Building Programme, the Gender Statistics Module, and Engendering Statistics in collaboration with the Uganda Bureau of Statistics.
4. **[Principal Investigator]** Developed the first ever indicators of governance in Uganda using Data Mapping approach, in collaboration with the Uganda Bureau of Statistics.
5. **[Principal Investigator]** Conducted the first ever National Governance Survey in collaboration with the Uganda Bureau of Statistics (UBOS) with funding from the United Nations Development Programme (UNDP) and German International Cooperation (GIZ). Immediate publications: Wesonga, R., Owino, A., Ssekiboobo, A., Atuhaire, L., & Jehopio, P. (2015). Health and human rights: a statistical measurement framework using household survey data in Uganda. *BMC international health and human rights*, 15(1), 11. Wesonga, R., Nabugoomu, F., Owino, A., Atuhaire, L., Ssekiboobo, A., Mugisha, X., ... & Ocaya, B. (2014). On statistical definition of free and fair election: bivariate normal distribution model. *International Journal of Mathematical Research*, 2014, 3(5): 49-62
6. **[Statistician]** Analysed and reviewed survey reports in collaboration with the Uganda Bureau of Statistics for the Uganda National Governance Survey (UNGS) and Governance, Peace and Security (GPS) Module.
7. **[Statistician]** Analysed data for a national baseline survey for non-communicable diseases in Uganda by the Ministry of Health and the World Health Organisation.
8. **[Statistician]** Analysed a multitude of different data types for different individuals and organisations nationally and internationally.

Academic Work & Research Grants

1. **Principal Investigator:** IG/SCI/DOMS/17/01. Modeling prevalence and regional distribution of asthma in Oman Prevalence rates for eleven regions were assessed using administrative health data for the period 2010 to 2015. The study established that the national asthma prevalence rate was 518 (Min: = 160, Max: =1144) per 10000. Generally, there was a positive marginal increase in the asthma prevalence over the period with the male contributing at least 18% to prevalence rates of asthma. Region was found to be a significant risk factor and associated with asthma prevalence rates over the study period.
2. **Principal Investigator:** IG/SCI/DOMS/18/13. Bayesian model averaging: fruits and vegetable consumption in Oman. The project described the relative merits of several competing packages in the R statistical environment to implement a BMA exercise. It further explored health-related indicators of vegetables and fruits consumption. Findings from this project were two-fold involving evaluation of the BMA statistical packages and, also to establish a set of plausible health-related and disease burden indicators related factors with fruits and vegetable consumption.
3. **Co-Principal Investigator:** IG/CON/AHCC/19/02. Disaster Preparedness among Nurses in Oman Knowledge is key ingredient in solving a number of challenges. Despite prevalence of disasters, little is known about level of knowledge about disasters by the nurses. This study establishes knowledge and attitudes of nurses about disasters and their degree of preparedness to deal with them.

Teaching, Learning & Lectureship

2016 – 2020 Sultan Qaboos University, *Department of Mathematics & Statistics*

Graduate Level Courses

- STAT6024 Sampling Theory
- STAT6012 Computational Statistics

Undergraduate Level Courses

- STAT5537 Multivariate Techniques
- STAT3336 Computational Techniques in Statistics
- STAT3335 Introduction to Sampling
- STAT2103 Probability for Engineers
- STAT2102 Introduction to Probability
- STAT2101 Introduction to Statistics

2011 – 2016 Makerere University, Institute of Social Research

Graduate Level Course (PhD)

- *Statistical Methods for PhD in Social Economic Research*

2000 – 2016 Makerere University, School of Statistics and Planning

Graduate Level Courses

- STA7102 Statistical Computing I:
- STA7202 Statistical Computing II:
- STA7307 Statistical Computing III:
- STA7309 Statistical Computing IV:

Undergraduate Level Courses

- BIS3208 Data Mining
- BIS3207 Management of Information Systems
- BIS3206 Database Management Systems
- STA2103 Systems Design and Analysis

1995 – 1999 Islamic University In Uganda, Department of Computer Science

Undergraduate Level Courses

- *Structured Computer Programming using C language*
- *Object-Oriented Computer Programming Using C++ and Java languages*
- *Design and Analysis of Algorithms*

Journal Publications

1. Tumwesigye, N. M., Mutungi, G., Bahendeka, S., **Wesonga, R.**, Katureebe, A., Biribawa, C., & Guwatudde, D. (2020). Alcohol consumption, hypertension and obesity: Relationship patterns along different age groups in Uganda. *Preventive Medicine Reports*, 19.
2. **Wesonga, R.**, Nabugoomu, F., Ababneh, F., & Owino, A. (2019). Simulation of time series wind speed at an international airport. *Simulation*, 95(2), 171-184. *I was the principal investigator. I also participated in development of the concept, data collection, management and analysis, interpretation of the results, drafting of the manuscript and I was the corresponding author.*
3. Bahendeka, S., **Wesonga, R.**, Were, T. P., & Nyangabyaki, C. (2019). Autoantibodies and HLA class II DR-DQ genotypes in Ugandan children and adolescents with type 1 diabetes mellitus. *International Journal of Diabetes in Developing Countries*, 39(1), 39-46. *I was the co-principal investigator. I also participated in data management and analysis, interpretation of the results and drafting of the manuscript.*
4. Bahendeka, S., Mutungi, G., Tugumisirize, F., Kamugisha, A., Nyangabyaki, C., **Wesonga, R.**, ... & Were, T. P. (2019). Healthcare delivery for paediatric and adolescent diabetes in low resource settings: Type 1 diabetes clinics in Uganda. *Global public health*, 1-15. *I was the co-principal investigator. I participated in data management and analysis, interpretation of the results and drafting of the manuscript.*
5. Kabwama, S. N., Bahendeka, S. K., **Wesonga, R.**, Mutungi, G., & Guwatudde, D. (2019). Low consumption of fruits and vegetables among adults in Uganda: findings from a countrywide cross-sectional survey. *Archives of Public Health*, 77(1), 4. *I was a member on the team. I participated in data management and analysis, interpretation of the results and drafting of the manuscript.*
6. Al-Abri, M. A., Al-Adawi, S., Al-Abri, I., Al-Abri, F., Dorvlo, A., **Wesonga, R.**, & Jaju, S. (2018). Daytime sleepiness among young adult Omani car drivers. *Sultan Qaboos University Medical Journal*, 18(2), e143. *I was a member on the team. I participated in data management and analysis, interpretation of the results and revision of the manuscript.*
7. Bahendeka, S., **Wesonga, R.**, Were, T. P., & Nyangabyaki, C. (2018). Autoantibodies and HLA class II DR-DQ genotypes in Ugandan children and adolescents with type 1 diabetes mellitus. *International Journal of Diabetes in Developing Countries*, 1-8. *I was a member on the team. I participated in data collection, sampling, data management and analysis, interpretation of the results and drafting of the manuscript.*
8. Jehopio, P. J., & **Wesonga, R.** (2017). Polytechnic engineering mathematics: assessing its relevance to the productivity of industries in Uganda. *International Journal of STEM Education*, 4(1), 16. *I was a member on the team. I participated in data management and analysis, interpretation of the results*
9. **Wesonga, R.**, Guwatudde, D., Nabugoomu, F., Mutungi, G., Muwonge, J., & Bahendeka, S. K. (2016). Burden of cumulative risk factors associated with non-communicable diseases among adults in Uganda: evidence from a national baseline survey. *International journal for equity in*

- health, 15(1), 195. *I was the principal investigator, of this academic output. I participated in data management and analysis, interpretation of the results and drafting of the manuscript.*
10. **Wesonga, R.,** & Nabugoomu, F. (2016). Framework for determining airport daily departure and arrival delay thresholds: statistical modelling approach. SpringerPlus, 5(1), 1-10. *I was the principal investigator, of this academic output. I participated in data management and analysis, drafting, interpretation of the results and revision of the manuscript.*
 11. Kabwama, S. N., Ndyababangi, S., Mutungi, G., **Wesonga, R.,** Bahendeka, S. K., & Guwatudde, D. (2016). Tobacco use and associated factors among Adults in Uganda: Findings from a nation-wide survey. Tobacco Induced Diseases, 14(1), 27. <http://dx.doi.org/10.1186/s12971-016-0093-8>. *I was a team member of this publication. I participated in data management and analysis, interpretation of the results and revision of the manuscript.*
 12. Bbosa, F., **Wesonga, R.,** & Jehopio, P. (2016). Clinical malaria diagnosis: rule-based classification statistical prototype. SpringerPlus, 5(1), 939. <http://dx.doi.org/10.1186/s40064-016-2628-0> *I was a key investigator of this academic output. I participated in data management and analysis, writing, interpretation of the results and revision of the manuscript.*
 13. Kabwama, S. N., Ndyababangi, S., Mutungi, G., **Wesonga, R.,** Bahendeka, S. K., & Guwatudde, D. (2016). Alcohol use among adults in Uganda: findings from the countrywide non-communicable diseases risk factor cross-sectional survey. Global health action, 9(2016). <http://dx.doi.org/10.3402/gha.v9.313> *I was a key investigator in this academic output. I participated in data management and analysis, interpretation of the results and revision of the manuscript.*
 14. Guwatudde, D., Kirunda, B. E., **Wesonga, R.,** Mutungi, G., Kajjura, R., Kasule, H., , Muwonge, J. & Bahendeka, S. K. (2016). Physical Activity Levels Among Adults in Uganda: Findings from a Countrywide Cross-Sectional Survey. Journal of physical activity & health. *I was a key investigator of this academic output. I participated in data management and analysis, interpretation of the results and revision of the manuscript.*
 15. Bahendeka, S., **Wesonga, R.,** Mutungi, G., Muwonge, J., Neema, S., & Guwatudde, D. (2016). Prevalence and correlates of diabetes mellitus in Uganda: a population-based national survey. Tropical Medicine & International Health, 21(3) pp 405-416. <http://dx.doi.org/10.1111/tmi.12663> *I was a key investigator of this academic output. I participated in data management and analysis, interpretation of the results and revision of the manuscript.*
 16. Guwatudde, D., Mutungi, G., **Wesonga, R.,** Kajjura, R., Kasule, H., Muwonge, J., Ssenono, V., and Bahendeka, S. K. (2015). The Epidemiology of Hypertension in Uganda: Findings from the National Non-Communicable Diseases Risk Factor Survey. PloS one, 10(9), e0138991. <http://dx.doi:10.1371/journal.pone.0138991> *I was a key investigator of this academic output. I participated in data management and analysis, interpretation of the results and revision of the manuscript.*
 17. **Wesonga, R.,** Nabugoomu F., and Masimbi B., (2014) Airline Delay Time Series Differentials: Autoregressive Integrated Moving Average Model. International Journal of Aviation Systems, Operations and Training (IJASOT), 1(2), 64-76. <http://dx.doi:10.4018/IJASOT.2014070105>

18. **Wesonga, R.**, Owino A., Ssekiboobo A. , Atuhaire L., Jehopio Peter (2015) Health and Human Rights: a statistical measurement framework using household survey data in Uganda, BMC International Health and Human Rights 05/2015; 15(1):11. <http://dx.doi.org/10.1186/s12914-015-0049-8>. *I was the principal investigator in this academic output. I participated in data management and analysis, interpretation of the results drafting and revision of the manuscript.*

19. **Wesonga, R.** (2015) Airport utility stochastic optimization models for air traffic flow management, European Journal of Operational Research, ELSEVIER, <http://dx.doi.org/10.1016/j.ejor.2014.10.042>. *I was the principal investigator and corresponding author in this academic output. I participated in data collection, management and analysis, writing, interpretation of the results and revision of the manuscript.*

20. **Wesonga, R.** (2015). On multivariate imputation and forecasting of decadal wind speed missing data. SpringerPlus, 4(1), 12, Springer Berlin Heidelberg. <http://dx.doi.org/10.1186/s40064-014-0774-9>. *I was the principal investigator and corresponding author in this academic output. I participated in data collection, management and analysis, writing, interpretation of the results and revision of the manuscript.*

21. **Wesonga, R.**, Nabugoomu, F., & Masimbi, B. (2014). Airline delay time series differentials: Autoregressive integrated moving average model. International Journal of Aviation Systems, Operations and Training (IJASOT), 1(2), 64-76. *I was the principal investigator and corresponding author in this academic output. I participated in data collection, management and analysis, writing, interpretation of the results and revision of the manuscript.*

22. Owino A. Y., **Wesonga, R.** and Nabugoomu F (2014) Determining Food Insecurity: an application of the Rasch Model to household survey data in Uganda, International Journal of Food Science, Hindawi Publishers, <http://dx.doi.org/10.1155/2014/121269>.

23. **Wesonga, R.**, Nabugoomu F., Owino A., Atuhaire L., Ssekiboobo A., Mugisha X., Ntozi J., Makumbi T., Jehopio P. and Ocaya B. (2014) On statistical definition of free and fair election: bivariate normal distribution model, International Journal of Mathematical Research, 2014, 3(5): 49-62.

24. Owino A. Y., Atuhaire L. K., **Wesonga, R.**, Nabugoomu F., and Muwanga-Zaake E. S. K. (2014) Logit Models for Household Food Insecurity Classification, American Journal of Theoretical and Applied Statistics, vol. 3, No.2, pp. 49-54. <http://dx.doi.org/10.11648/j.ajtas.20140302.14>.

25. **Wesonga, R.** and Nabugoomu F. (2014) Bayesian Model Averaging: An Application to the Determinants of Airport Departure Delay in Uganda, American Journal of Theoretical and Applied Statistics, vol. 3, pp. 1-5. <http://dx.doi.org/10.11648/j.ajtas.20140301.11>.

26. **Wesonga, R.**, Nabugoomu F., and Jehopio J.P. (2012) Parameterized framework for the analysis of probabilities of aircraft delay at an airport, Journal of Air Transport Management 23 (2012) 1-4, ELSEVIER Ltd, <http://dx.doi.org/10.1016/j.jairtraman.2012.02.001>.

References

1. Prof. Fabian Nabugoomu, Kyambogo University. Email: fnabugoomu@gmail.com
2. Prof. Leonard Atuhaire, Makerere University. Email: leonardatuhaire@gmail.com
3. Dr. Abraham Owino, Makerere University. Email: ayowino@gmail.com



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