

## KASSIM TAWIAH

### Curriculum Vitae

**Current address:** Department of Mathematics and Statistics,  
University of Energy and Natural Resources, P. O. Box 214, Sunyani, Ghana.

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Web of Science: <https://www.webofscience.com/wos/author/record/AAX-1193-2021>  
Researchgate: <https://www.researchgate.net/profile/Kassim-Tawiah>  
Google scholar: <https://scholar.google.com/citations?user=zpjYtQ8AAAAJ&hl=en&oi=ao>

**Teaching Philosophy:** I endeavour to work with other faculty members to create a serene classroom environment to engage and collaborate with students to prepare them adequately and effectively to be mastery of current concepts and theories in statistics and its applications in the real world so that they can have enormous knowledge and skills to impact society.

**Research Philosophy:** I wish to engage other faculty members and researchers worldwide to handle data efficiently and develop new ideas and add up to existing ones in the areas of biostatistics, mixed models, overdispersed models, applied statistics, Bayesian statistics, machine learning, and time series and impact society with it.

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#### **Key skill**

Programming in R

#### **Education and Training:**

Kwame Nkrumah University of Science and Technology, Kumasi  
Doctor of Philosophy in Mathematical Statistics (Student), 2020 to date

University of Ghana, Accra

**Master of Philosophy Statistics, July 2015**

University of Education, Winneba

**Diploma in Education, August 2015**

University of Cape Coast, Cape Coast

**Bachelor of Science Mathematics and Statistics, May 2009**

Swedru Senior High School, Agona Swedru

## S.S.S.C.E General Science, August 2002

### Career History

**Lecturer (Statistics);** 2018 to date

Department of Mathematics and Statistics, University of Energy and Natural Resources, Sunyani, Ghana

**Part-time Lecturer (Statistics);** 2016 to 2019

College of Distance Education, University of Cape Coast, Cape Coast, Ghana

**Lecturer (Statistics);** 2017 to 2019

Sandwich Programme, College of Distance Education, University of Cape Coast, Cape Coast, Ghana

**Mathematics Tutor;** 2010 to 2018

Makessim Senior High Technical School, Ghana Education Service, Mankessim, Ghana.

### Publications

1. Iddrisu , A., Bukari, F. K., Opoku-Ameyaw, K., Afriyie, G. O., & **Tawiah, K.** (2020). Factors that determine the likelihood of giving birth to the first child within 10 months after marriage. *Journal of Pregnancy*, vol. 2020, Article ID 4675907, 12 pages, 2020. <https://doi.org/10.1155/2020/4675907>
2. Iddrisu, A., **Tawiah, K.**, Bukari, F. K., & Kumi, W. (2020). Frequentist and Bayesian Regression Approaches for Determining Risk Factors of Child Mortality in Ghana. *BioMed Research International*, vol. 2020, Article ID 8168479, 10 pages, 2020. <https://doi.org/10.1155/2020/8168479>
3. **Tawiah, K.**, Iddi, S., & Lotsi, A. (2020). On zero-inflated hierarchical Poisson models with application to maternal mortality data. *International Journal of Mathematics and Mathematical Sciences*, vol. 2020, Article ID 1407320, 8 pages, 2020. <https://doi.org/10.1155/2020/1407320>
4. **Tawiah, K.**, Iddrisu, W. A., & Asosega, K. A. (2021). Zero-inflated time series modeling of COVID-19 death in Ghana. *Journal of Environmental and Public health*, vol. 2021, Article ID 5543977, 9 pages, <https://doi.org/10.1155/2021/5543977>
5. Dwamena, H.A, **Tawiah, K.**, & Serwaa, A.K.A. (2022). Effect of rainfall, temperature, and relative humidity on the yield of cassava, yam, and maize in the Ashanti Region of Ghana. *International Journal of Agronomy*, vol. 2022, Article ID 9077383, , <https://doi.org/10.1155/2022/9077383>
6. Asosega, K.A., Iddrisu, W.A., **Tawiah, K.**, Opoku, A.A., & Okyere, E. (2022). Comparing Bayesian and maximum likelihood methods in structural equation

modelling of university student satisfaction: An empirical analysis, *Education Research International*, vol. 2022, article ID 3665669, <https://doi.org/10.1155/2022/3665669>

7. Daniyal, M., **Tawiah, K.**, Muhammadullah, S., & Opoku-Ameyaw, K. (2022). Comparison of conventional modelling techniques with the neural network autoregressive model (NNAR): Application to COVID-19 data. *Journal of Healthcare Engineering*, vol. 2022, article ID 4802743, <https://doi.org/10.1155/2022/4802743>
8. Shehzad, F., Rajab, M., Daniyal, M., Ahmed, R. & **Tawiah, T.** (2022). Optimal Circular Balanced Repeated Measurements Designs for  $v=p$  through the Method of Cyclic Shift (MCS) Rule II. *Mathematical Problems in Engineering*, vol. 2022, Article ID 2875183. <https://doi.org/10.1155/2022/2875183>
9. Khan, A., Qureshi, M., Daniyal, M., & **Tawiah, K.** (2022). Impact of Sociocultural Factors on Contraceptive Use: A Case Study of Pakistan. *BioMed Research International*, vol. 2022. <https://doi.org/10.1155/2022/2939166>
10. Khan, M. D., Daniyal, M., Hassan, A., Saeed, M. A., & **Tawiah, K.** (2022). Empirical Analysis With Legislative Solutions of Workplace Cyberbullying: A Case Study of Female Nurses in Pakistan. *International Journal of Cyber Behavior, Psychology and Learning (IJCBPL)*, 12(1), 1-11. <http://doi.org/10.4018/IJCBPL.308303>
11. Qureshi, M., Daniyal, M., & **Tawiah, K.** (2022). Comparative Evaluation of the Multilayer Perceptron Approach with Conventional ARIMA in Modelling and Prediction of COVID-19 Daily Death Cases. *Journal of Healthcare Engineering*, vol. 2022, Article ID 4864920. <https://doi.org/10.1155/2022/4864920>
12. Khan, M. D., Daniyal, M., Abid, K., **Tawiah, K.**, Tebha, S. S., & Essar, M. Y. (2023). Analysis of adolescents' perception and awareness level for Sexual and Reproductive Health Rights in Pakistan. *Health Science Reports*, 6(1), e982. [doi:10.1002/hsr2.982](https://doi.org/10.1002/hsr2.982)
13. Afriyie, J.K., **Tawiah, K.**, Pels, W.A., Addai-Henne, S., Dwamena, H.A., Odame Owiredu, E., Amening Ayeh, S.A., & Eshun, J. (2023). A supervised machine learning algorithm for detecting and predicting fraud in credit card transactions. *Decision Analytics Journal*, 6, 100163, <https://doi.org/10.1016/j.dajour.2023.100163>.
14. Khan, A., Qureshi, M., Daniyal, M., & **Tawiah, K.** (2023). A Novel Study on Machine Learning Algorithm-Based Cardiovascular Disease Prediction. *Health & Social Care in the Community*, vol. 2023, Article ID 1406060. <https://doi.org/10.1155/2023/1406060>
15. Danish, F., Jan, R., Daniyal, M., & **Tawiah, K.** (2023). Optimum Stratification Using Dynamic Programming with a Mixture of Ratio and Product Estimators under Super Population Model. *Mathematical Problems in Engineering*, vol. 2023, Article ID 3149912. <https://doi.org/10.1155/2023/3149912>
16. **Tawiah, K.**, Asampana Asosega, K., Ansah, R. K., Appiah, S. T., Otoo, D., Aponye, I. A., ... & Addai, I. M. (2023). Confirmed Malaria Cases in Children under Five Years: The Influence of Suspected Cases, Tested Cases, and Climatic Conditions. *Health & Social Care in the Community*, vol 2023, Article ID 8469372. <https://doi.org/10.1155/2023/8469372>
17. Daniyal, M., **Tawiah, K.**, Qureshi, M., Haseeb, M., Asosega, K. A., Kamal, M., & Rehman, M. U. (2023). An autoregressive distributed lag approach for estimating the

nexus between CO2 emissions and economic determinants in Pakistan. *Plos one*, 18(5), e0285854.

18. **Tawiah, K.**, Daniyal, M., & Qureshi, M. (2023). Pakistan CO2 Emission Modelling and Forecasting: A Linear and Nonlinear Time Series Approach. *Journal of Environmental and Public Health*, 2023. Article ID 5903362. <https://doi.org/10.1155/2023/5903362>
19. Ansah, R. K., Boadi, R. K., Obeng-Denteh, W., & **Tawiah, K.** (2023). Inverse problem for the quartic mean-field Ising model. *The European Physical Journal Plus*, 138(7), 626.
20. Iftikhar, H., Daniyal, M., Qureshi, M., **Tawiah, K.**, Ansah, R. K., & Afriyie, J. K. (2023). A hybrid forecasting technique for infection and death from the mpox virus. *Digital Health*, 9, 20552076231204748.
21. Qureshi, M., Khan, A., Daniyal, M., & **Tawiah, K.**, & Mehmood, Z. (2023). A Comparative Analysis of Traditional SARIMA and Machine Learning Models for CPI Data Modelling in Pakistan. *Applied Computational Intelligence and Soft Computing*, vol. 2023, Article ID 3236617. <https://doi.org/10.1155/2023/3236617>
22. Ansah, R. K., Tackie, S., Twum, R. A., Tawiah, K., Boadi, R. K., Addo, D. A., ... & Zigli, D. D. (2024). The relationship between anaemia and the use of treated bed nets among pregnant and non-pregnant women in Ghana. *Plos one*, 19(5), e0300431.
23. Ansah, R. K., Boadi, R. K., Obeng-Denteh, W., Tawiah, K., & Appiah, S. T. (2024). Exploring mean field spin models with multiple populations: A theoretical framework. *AIP Advances*, 14(5).

### Conference Paper Presentation

1. **Tawiah, K.**, Iddi, S., and Lotsi, A.(2020). Zero-inflated models application to maternal mortality data. Third International Conference on Mathematics and Statistics, 2020 (AUS-ICMS'20), The American University of Sharjah, UAE. February 6-9, 2020.
2. **Tawiah, K.**, Iddi, S., and Lotsi, A. (2020). On zero-inflated hierarchical Poisson models with application to maternal mortality data. World Statistics Day and International Year of women in Statistics and Data Science Symposium, KNUST, Ghana. October 20, 2020.

### Conference Participation

1. International conference on Science, Technology, and Health Innovation for Sustainable Development, University of Energy and Natural Resources, Sunyani, Ghana. August 23-25, 2023.

### Workshops/Seminars Attended

1. Intellectual Property (IP) Workshop, UENR. September 20, 2019

2. NVIDIA Deep Learning Institute: Fundamentals of Accelerated Computing with CUDA C/C++, UENR. October 29, 2019
3. UENR-ACU Professional Development Interactive Seminar, Feb. 21, 2019
4. Good Assessment Practices in Higher Education: Improving Teaching and Learning, UENR. January 16-17, 2019
5. Applications of Numerical Methods in Statistics in R, KNUST. October, 21-22, 2020
6. African Mathematical School in Mathematical Methods in Analysis and Probability, AIMS Ghana, August 16-27, 2021.
7. How to write a successful grant proposal by the National Institute of Statistical Sciences, USA, November 4, 2021

### **Peer Reviewer for the following journals**

1. Health Science Reports, Wiley
2. PLoS ONE
3. Environmental Science and Pollution Research, Springer
4. Discover Sustainability, Springer link
5. BMC Women's Health, Springer Nature
6. Scientific Programming, Hindawi
7. IAES International Journal of Artificial Intelligence
8. International Journal of Medical Informatics
9. Asian Journal of Probability and Statistics

### **Grants/Funds Won**

University of Ghana-Carnegie Corporation "Next Generation of Academics in Africa Project".

### **Society Membership**

Royal Statistical Society, UK.

**Fellow**; 2020 to date; membership number: 203410

**Member** of the International Development Section Committee.

International Biometric Society-Ghana Chapter

**Member**; 2021 to date; membership number: 1406437

American Statistical Association, USA

**Member**; 2021 to date; membership number: 245525

## **Service to Community**

1. Advocate for all-inclusive education, eradication of teenage pregnancy, and a public health awareness expert in rural areas in Ghana.
2. As a student academic counsellor, I help shape students for a career in statistics as well as cope with life in the university.
3. Team Leader/ Supervisor: Lot Quality Assurance Survey and Independent Monitoring of first round of MOPV2 Vaccination exercise in Tano South District, Ahafo Region, Ghana by the Ghana Health Service and World Health Organization
4. Examiner for Elective/Further Mathematics, West African Examinations' Council, Ghana.

## **Research Interest:**

Biostatistics, mixed models, overdispersed models, applied statistics, Bayesian statistical modelling, machine learning, time series

## **Referees**

### **Prof. Samuel Iddi**

Department of Statistics and Actuarial Science

University of Ghana, Accra, Ghana.

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Mobile : +233 267603243

### **Prof. Nana Kena Frempong**

Department of Statistics and Actuarial Science

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

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### **Prof. Alex Akwasi Opoku**

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