Dr. Richard K. Avuglah

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RESEARCH

Interests	Statistical Modelling · Financial Modelling · Design and Analysis of Experiments · AR · MA · ARMA and ARIMA models · power curve model · Stochastic Differential Equation Modeling · Grid stability · Optimal and Efficient designs
Areas	Finance · Statistics and Probability · Ecology, Evolution, Behavior and Systematics · Global and Planetary Change · Strategy and Management · Aerospace Engineering

RESEARCH SUMMARY

21	150	6	4	1.41	14%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 21 publications listed below, 2011–2026. Field-weighted impact is the mean over the 14 works scored for it; 1.00 is the world average for works of the same field, type and year. 2 of the 14 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Associate Professor 2025–present
Department of Statistics and Actuarial Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Senior Lecturer 2015–2025
Department of Statistics and Actuarial Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Research Assistant 2007–2011
Fraunhofer Institute for Industrial Mathematics, Kaiserslautern, Germany

Lecturer 2006–2015
Department of Mathematics, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Mathematics Teacher 2004–2006
Blessed Training Centre, South Wimbledon, London, United Kingdom

Mathematics Teacher 1999–2001
St. John's Grammar Senior High School, Achimota, Accra, Ghana

Teacher 1993–1995
St. Lawrence Preparatory/Junior High School, North Kaneshie, Accra, Ghana

National Service Person 1992–1993
National Council on Women and Development (NCWD), Ho, Ghana

EDUCATION AND QUALIFICATIONS

PhD Applied Mathematical Statistics 2007–2011
Department of Mathematics, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Landau, Germany

MSc Financial Mathematics 2001–2003
Department of Mathematics, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Landau, Germany

BSc Mathematics 1995–1999
Department of Mathematics, University of Cape Coast, Cape Coast, Ghana

GCE O' and A' Level 1985–1992
Bishop Herman College, Kpando, Ghana

Common Entrance Examinations 1979–1985
Harrow International Preparatory School, Abeka, Accra, Ghana

DISTINCTIONS, MEMBERSHIPS AND SERVICE

International Biometric Society
Washington, United States

Ghana Statistical Association
Kumasi, Ghana

PUBLICATIONS

Journal articles 19

1. Seth A. Mahu, Flavio Odoi-Yorke, Akwasi Adu-Poku, **Richard K. Avuglah**, Emmanuel A. Frimpong, David A. Quansah, Francis Kemausuor (2026). Overcoming Technical and Operational Barriers in Low-Voltage Mini-Grids: Two Decades of Research Trends, Progress, and Pathways for Accelerated Rural Electrification (2005–2025). *Energies*. https://doi.org/10.3390/en19040933
2. Emmanuel deGraft Johnson Owusu-Ansah, **Richard Kodzo Avuglah**, Emmanuel Harris, Adwubi Yaa Kyere, Bernard deGraft Amankwaa (2025). Optimizing renewable energy integration: statistical models for grid stability and economic viability. *Academia green energy.*. https://doi.org/10.20935/acadenergy7430
3. MA Boateng, **RK Avuglah** (2025). Predicting malaria outbreaks in children under five: insights from Ghana. *Journal of Health Informatics in Africa*. https://jhia-online.org/index.php/jhia/article/view/550
4. Ernest Konadu Appiah, Eric Nimako Aidoo, **Richard Kodzo Avuglah**, Simon Kojo Appiah (2024). Geographically weighted logistic regression model for identifying risk factors for malaria infection among under-5 children in Ghana. *Scientific African*. https://doi.org/10.1016/j.sciaf.2024.e02398
5. EGJ Owusu-Ansah, **RK Avuglah** (2024). Machine learning algorithms analysis of synthetic minority oversampling technique (smote): Application to credit default prediction. *Ratio Mathematica*. https://www.academia.edu/download/132417378/Machine_Learning_Algorithms_An.pdf
6. Nana Kena Frempong, **Richard Kodzo Avuglah** (2024). Simulation Study of Estimators of the Gamma Rate Parameter Using MLE as a Baseline Estimator. *Journal of the Indian Society for Probability and Statistics*. https://doi.org/10.1007/s41096-024-00182-z
7. Nana Kena Frempong, **Richard Kodzo Avuglah**, Jacob Adubasum Anane, James Atambire (2023). Determinants of Length of Stay of Snakebite Victims in a Hospital. Statistical Modeling Approach. *European Journal of Theoretical and Applied Sciences*. https://doi.org/10.59324/ejtas.2023.1(5).124
8. M. A. Boateng, A. Y. Omari-Sasu, **R. K. Avuglah**, N. K. Frempong (2022). A Mixture of Clayton, Gumbel, and Frank Copulas: A Complete Dependence Model. *Journal of Probability and Statistics*. https://doi.org/10.1155/2022/1422394

9. Nana Kena Frempong, **Richard Kodzo Avuglah**, Isaac Kwame Dontwi, Francis Kwame Bukari (2021). Improved estimators for the rate parameter of gamma model using asymptotic properties. *Heliyon*. https://doi.org/10.1016/j.heliyon.2021.e06941
10. **Richard Kodzo Avuglah**, Joseph Xavier Francisco Ribeiro, Kwabena Asiedu Bugyei, Francis Kumi, Joseph Oppong Akowuah, Hayford Ofori, Catherine Otchere (2021). Status, challenges and prospects of food processing equipment fabricators in Ghana. *Scientific African*. https://doi.org/10.1016/j.sciaf.2021.e00843
11. Smart A. Sarpong, **Richard K. Avuglah**, N. N. N. Nsowah-Nuamah (2020). Application of Joint Generalized Linear Models in Determining Physical Support Factors that Influence Crop Yield in Northern Ghana. *Universal Journal of Agricultural Research*. https://doi.org/10.13189/ujar.2020.080404
12. Maxwell Akwasi Boateng, Akoto Yaw Omari-Sasu, **Richard Kodzo Avuglah**, Nana Kena Frempong (2018). Hybrid Clayton-Frank Convolution-Based Bivariate Archimedean Copula. *Journal of Probability and Statistics*. https://doi.org/10.1155/2018/5902839
13. Maxwell Akwasi Boateng, Akoto Yaw Omari-Sasu, Nana Kena Frempong, **Richard Kodzo Avuglah** (2018). On a Hybrid Clayton-Gumbel and Gumbel-Frank Bivariate Copulas with Application to Stock Indices. *Journal of Advances in Mathematics and Computer Science*. https://doi.org/10.9734/jamcs/2019/45668
14. **RK Avuglah**, L Asiedu, EN Nortey (2018). Recognition of face images under varying head-poses using fft-pca/svd algorithm. *Far East Journal of Mathematical Sciences (FJMS)*. https://www.researchgate.net/profile/Louis-Asiedu-3/publication/324990917_RECOGNITION_OF_FACE_IMAGES_UNDER_VARYING_HEAD-POSES_USING_FFT-PCASVD_ALGORITHM/links/5af0487c458515f599846df4/RECOGNITION-OF-FACE-IMAGES-UNDER-VARYING-HEAD-POSES-USING-FFT-PCA-SVD-ALGORITHM.pdf
15. MA Boateng, AY Omari-Sasu, **RK Avuglah**, NK Frempong (2017). On two random variables and archimedean copulas. *International Journal of Statistics and Applications*. https://www.academia.edu/download/132417150/ontworandomvariables.pdf
16. **RK Avuglah** (2014). Application of ARIMA models to road traffic accident cases in Ghana. *International journal of statistics and applications*. https://scholar.google.com/scholar?cluster=16201906399413669784&hl=en&oi=scholarr
17. **R Avuglah** (2014). Modeling road traffic fatality cases in Ghana. *Mathematical Theory and Modelling*. https://www.academia.edu/download/132417289/ADU_POKUPUBLICATION2.pdf
18. Stella B. Acquah, **Richard K. Avuglah**, Emmanuel Harris (2014). Time Series Behavior of the Volume of Wood Products Export in Ghana. *International Journal of Statistics and Probability*. https://doi.org/10.5539/ijsp.v3n4p12
19. Emmanuel Harris, A. R. Abdul-Aziz, **Richard Kodzo Avuglah** (2012). Modeling annual Coffee production in Ghana using ARIMA time series Model. *RePEc: Research Papers in Economics*. https://doi.org/10.18533/ijbsr.v2i7.129

Book chapters 1

1. Emmanuel de-Graft Johnson Owusu-Ansah, **Richard Kodzo Avuglah**, Yaa Adwubi Kyere (2024). Quantum Leap and Uptake for Technological Advances in Africa in the Era of the COVID-19 Crisis. *Advances in IT standards and standardization research (AISSR) book series/Advances in IT standards and standardization research series*. https://doi.org/10.4018/978-1-6684-9962-7.ch013

Theses 1

1. **RK Avuglah** (2011). Some Steps towards Experimental Design for Neural Network Regression. *Universitätsbibliothek Kaiserslautern*. https://kluedo.ub.rptu.de/frontdoor/deliver/index/docId/2349/file/PhD%20Thesis.pdf