

# Ayeni Taiwo Michael

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🔍 Google Scholar | 📄 ResearchGate | 🌐 GitHub | 🔗 LinkedIn | 🌐 Website

## Research Interests

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- Survival Analysis and Lifetime Data Modeling
- Distribution Theory and Flexible Probability Models
- Empirical Likelihood Methods (JEL, AJEL, EJEL)
- Bayesian Inference and Simulation-Based Methods
- Reliability Modeling and Biomedical Applications

## Education

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**Master of Applied Statistics (Biostatistics Concentration)** Jan. 2026 – Present  
*Department of Mathematics & Statistics, Georgia State University, Atlanta, GA*

- Advisor: Prof. Yichuan Zhao
- Thesis: *The QTEG Distribution and Its Empirical Likelihood Extension for Survival Analysis* (in progress)

**Master of Professional Studies in Analytics (Statistical Modeling)** Jan. 2024 – Jun. 2025  
*Northeastern University, Toronto, Canada*

- GPA: 3.86 / 4.0

**Master of Science in Statistics** Apr. 2018 – Jan. 2021  
*Ekiti State University, Ado-Ekiti, Nigeria*

- GPA: 4.31 / 5.0 (WES: 3.57 / 4.0)
- Thesis: *Determination of the Efficiency of the Exponential-Gamma Model and Formation of the Exponential-Gamma-X Family of Distributions*
- Supervisor: Prof. Olukunle Daniel Ogunwale

**Bachelor of Science in Statistics** Oct. 2010 – Jan. 2016  
*Ekiti State University, Ado-Ekiti, Nigeria*

- GPA: 2.87 / 5.0 (WES: 2.94 / 4.0)

## Research in Progress

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**Jackknife Empirical Likelihood Inference for the Quadratic-Transformed Exponential-Gamma Distribution** (*In Progress*)

- Developing JEL, AJEL, and EJEL methods for parameter inference
- Constructing likelihood-free inference using survival function-based estimating equations
- Evaluating finite-sample coverage performance under small-sample settings via Monte Carlo simulation
- Extending the framework to goodness-of-fit testing using characterisation-based U-statistics

## Publications

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### Peer-Reviewed Journal Articles

- Agbona, A. A., Odukoya, E. A., Amalare, A., & **Ayeni, T. M.** (2025). Exponential-Gamma-Rayleigh Distribution: Theory and Properties. *Asian Journal of Probability and Statistics*, 27(3), 134–144. [doi.org/10.9734/ajpas/2025/v27i3730](https://doi.org/10.9734/ajpas/2025/v27i3730)
- Adeyiola, I. A., **Ayeni, T. M.**, & Odukoya, E. A. (2024). Sentiment Analysis Using Healthcare Data. *International Journal of Science and Research Archive*, 13(2), 3143–3148. [doi.org/10.30574/ijrsra.2024.13.2.2476](https://doi.org/10.30574/ijrsra.2024.13.2.2476)
- Faweya, O., Akinyemi, O., **Ayeni, T. M.**, & Tanimowo, M. O. (2023). Comparative Analysis on the Rate of Sexually Transmitted Diseases in Ekiti State. *International Journal of Research Publication and Reviews*, 4(4), 1693–1702. [doi.org/10.55248/gengpi.2023.4.4.34559](https://doi.org/10.55248/gengpi.2023.4.4.34559)
- Faweya, O., Akinyemi, O., Ajayi, E. D., & **Ayeni, T. M.** (2023). Statistical Study of Rainfall Patterns in Ondo State, Nigeria. *International Journal of Novel Research in Physics Chemistry & Mathematics*, 10(2), 37–42. [doi.org/10.5281/zenodo.8154921](https://doi.org/10.5281/zenodo.8154921)
- **Ayeni, T. M.**, Adeyiola, I. A., & Odukoya, E. A. (2023). Rayleigh-Exponential-Gamma Distribution: Theory and Properties. *International Journal of Research Publication and Reviews*, 4(8), 33–39. [doi.org/10.55248/gengpi.4.823.48497](https://doi.org/10.55248/gengpi.4.823.48497)

## Manuscripts Under Review

- **Ayeni, T. M.**, Odukoya, E. A., & Zhao, Y. (2026). Quadratic Functional Variable Transformation of the Exponential-Gamma Distribution for Flexible Lifetime Modelling. *Statistical Papers*. Under review.

## Manuscripts in Preparation

- **Ayeni, T. M.**, & Zhao, Y. Jackknife Empirical Likelihood Inference for the Quadratic-Transformed Exponential-Gamma Distribution. *Manuscript in preparation*.

## Research Experience

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### Master's Thesis Research

Apr. 2018 – Jan. 2021

*Ekiti State University*, Ado-Ekiti, Nigeria

- Developed the Exponential-Gamma-X (EG-X) family of distributions
- Derived theoretical properties and maximum likelihood estimation procedures
- Evaluated model performance through simulation studies and real datasets

## Academic Appointments

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### Graduate Teaching Assistant (GTA)

Jan. 2026 – Present

*Department of Mathematics & Statistics, Georgia State University*, Atlanta, GA

- Provide academic support to undergraduate students enrolled in College Algebra
- Assist students with conceptual understanding, problem-solving strategies, and exam preparation
- Reinforce foundational algebraic reasoning and quantitative skills in a structured learning environment

## University Teaching Experience

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### Assistant Lecturer

Mar. 2020 – Dec. 2023

*Department of Statistics, Ekiti State University*, Ado-Ekiti, Nigeria

- Taught probability theory, distribution theory, and statistical computing
- Supervised 40+ undergraduate research projects to completion
- Designed curriculum integrating theory with applied statistical methods
- Organised workshops on statistical computing and research methodology

## Selected Projects

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### PredictRisk: Cardiovascular Risk Prediction (Bayesian Framework)

- Developed Bayesian models using PyMC and MCMC for six cardiovascular conditions
- Built an interactive Streamlit clinical decision-support application with uncertainty quantification

### WorkWell AI: Burnout and Wellness Prediction System

- Developed machine learning models for behavioural prediction
- Built a full-stack application using Flask and React

## Professional Experience

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### ESG Data Analyst Intern

Mar. 2025 – Jun. 2025

*Re-Volt Charging Inc.*, Waltham, MA

- Applied statistical modelling to evaluate ESG impacts of EV charging infrastructure

### Data Analyst Intern

Sep. 2024 – Dec. 2024

*United Way Greater Toronto*, Toronto, Canada

- Conducted NLP and statistical analysis of community socio-economic data

## Presentations

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- **Ayeni, T. M.** (2026). The QTEG Distribution and Its Empirical Likelihood Extension for Survival Analysis. *End-of-Year Research Celebration, Department of Mathematics & Statistics, Georgia State University*, Atlanta, GA. April 10, 2026. Oral Presentation.
- **Ayeni, T. M.** (2025). Comparative Evaluation of Machine Learning Algorithms for Three-Class Diabetes Classification Using NHANES Data. *Professional Statisticians' Society of Nigeria (PSSN) Annual Conference*. Oral Presentation.
- **Ayeni, T. M.** (2025). WorkWell AI: Predictive Wellness and Mental Health Monitoring. *Northeastern University Pitch Summit*. Research Demonstration.

## Technical Skills

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**Statistical Methods:** Survival analysis, distribution theory, empirical likelihood, Bayesian inference, simulation

**Programming:** R, Python, SQL, SAS

**Tools & Frameworks:** PyMC, Stan/cmdstanr, ArviZ, L<sup>A</sup>T<sub>E</sub>X, Overleaf, Streamlit

**ML (Supporting):** XGBoost, Random Forest, PCA

## Awards and Honors

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- Commonwealth Fellowship 2025
- Crest Africa Award for Best Innovator in Applied Statistics 2024
- Best Graduating Master's Student, Ekiti State University 2021

## Professional Memberships

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- Professional Statisticians' Society of Nigeria (PSSN)
- Chartered Institute of Statisticians of Nigeria (CISON)

## Certifications

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- Using Data for Healthcare Improvement – Imperial College London
- Logistic Regression for Health Data – University of Michigan
- Linear Regression for Health Data – University of Michigan