

Profile Summary

- Over 7 years experience in quantitative analysis, impact evaluation, and research consultancy in health, education, and humanitarian contexts
- Research consultant with expertise in advanced statistical modeling, data management, and survey data analysis.
- Skilled in data visualization and automated R workflows for large-scale, multi-district projects.

Experience

2025 Jan – 2025 Jun **Research Consultant (Quantitative Analyst)**, *International AIDS Vaccine Initiative (IAVI)*, New York

- Led advanced statistical analysis and evaluation support for global health research initiatives.
- Developed sampling strategies and metadata-driven frameworks for survey design and reporting.
- Automated R pipelines for analysis across multi-district surveys
- Produced dashboards and reports disaggregated by gender, age, and equity indicators.
- Ensured integration of qualitative and quantitative insights in evaluations.

2021 – 2023 **BI & Data Analytics Consultant**, *3.14 Tech Solutions & Analytics*, Ho

- Delivered business intelligence and analytics support to clients across health, education, and public administration sectors.
- Designed interactive dashboards and reporting systems that improved decision-making by visualizing key performance indicators (KPIs).
- Conducted data cleaning, integration, and advanced statistical analysis, providing actionable insights for program evaluation and monitoring.
- Built predictive models to support forecasting and scenario planning for clients.
- Provided capacity-building and training to client staff on analytics tools (Excel, Power BI, R, Python) for long-term sustainability.
- Prepared technical documentation and evaluation reports, ensuring clarity, reproducibility, and alignment with client objectives.

2020 – 2022 **Data Scientist & Researcher**, *Centre for Research, Data Science and IT Solutions*, Ho

- Conducted quantitative and applied research in health (maternal/child health, anemia, infectious diseases), agriculture (crop yields, irrigation optimization), and governance (citizen perception studies).
- Designed and implemented machine learning models for:
 1. Natural Language Processing (NLP): sentiment analysis of public opinion, text classification, and topic modeling.
 2. Disease classification: predictive models for malaria, cervical cancer, and other health outcomes.
- Developed custom algorithms and statistical tools for large-scale data analysis.
- Managed end-to-end data workflows – from survey design and database setup to cleaning, analysis, and reporting.
- Authored technical reports and publications, disseminating research findings to academic, governmental, and NGO stakeholders.

- 2020 Sept - **Research Consultant, WHO/GHS/University of Health and Allied Sciences, Ho**
- 2020 Dec
- Designed and developed data collection tools (survey questionnaires, digital forms) tailored to capture behavioral insights on COVID-19 among adults (18+ years) across Ghana.
 - Set up digital platforms and secure databases to store and manage large volumes of behavioral and epidemiological data in line with WHO/GHS standards.
 - Customized data workflows to enable real-time monitoring and analysis of perceptions, attitudes, and practices related to COVID-19 prevention and control.
 - Ensured data quality and validity by implementing standard operating procedures for cleaning, coding, and consistency checks.
 - Trained field enumerators and data officers in using digital data collection tools to improve accuracy, speed, and reliability of survey administration.
 - Provided technical support during the data collection period (Sept–Dec 2020) to troubleshoot issues and maintain data integrity.
 - Collaborated with WHO, GHS, and UHAS teams to align data collection and reporting frameworks with project goals and donor requirements.
 - Analyzed preliminary data outputs to provide actionable insights on behavioral drivers of COVID-19 responses in Ghana.
 - Ensured compliance with data governance and ethical standards, safeguarding participant confidentiality throughout the study.
- 2007 – 2009 **Project Coordinator for USAID/AED/SHARP & UNHCR HIV/AIDS Projects, Future Generations International, Volta Region**
- Developed data collection tools for 10 project districts.
 - Monitored project activities, outputs and progress towards anticipated results.
 - Worked with data platforms, databases and selected technologies to capture and organize data.
 - Trained field staff in monitoring and evaluation processes of data collection.
 - Provided support to data quality assessments.
 - Cleaned, sorted, categorized and organized data.
 - Determined data analysis procedures and use of quantitative or qualitative analysis tools.
 - Analyzed quantitative/qualitative data and summarized findings.
 - Developed monthly, quarterly or annual reports.
 - Disseminated evaluation findings and project results to donors and other stakeholders.

Education

- 2023 – 2026 **PhD Candidate, Applied Statistics, C.K. Tedam University of Technology and Applied Sciences, Navrongo**
- 2012 – 2015 **M.Sc. Industrial Mathematics, Kwame Nkrumah University of Science and Technology, Kumasi**
Thesis: Efficient Irrigation and Cropping Patterns: A Linear Programming Approach
- 2001 – 2006 **B.Sc. Economics & Mathematics, University of Cape Coast, Cape Coast.**
- 1998 – 2000 **SSSCE (General Arts), Ghana National College, Cape Coast.**

Key Skills

- Microsoft Suite Microsoft Word, Microsoft Excel, Power Point.
- Software R, Python, STATA, SPSS, STATGRAPHICS, JASP, PSPP, Matlab, LaTeX, EndNote, Zotero, Mendeley, JabRef, KoboToolbox, SurveyCTO, MySQL, PgAdmin.
- Languages English (fluent)

Selected Publications (3/18)

1. Otoo, J., Nasiru, S., & Angbing, I.D. (2025). Shifted Hexpo activation function: An improved vanishing gradient mitigation activation function for disease classification. Machine Learning with Applications. DOI: <https://doi.org/10.1016/j.mlwa.2025.100651>
2. Otoo., J., Senyefia, B., Cynthia, N.C., Eunice, O., & Yeboah, B.E. (2020). Covid-19 Projections: Single Forecast Model Against Multi-Model Ensemble. International Journal of Systems Science and Applied Mathematics.
3. Otoo., J., Dah, P.K., Boateng, E.Y., & Abaye, D.A. (2019). Correlates of Hepatitis B Virus Infection among Antenatal Clinic Attendees of Volta Regional Hospital, Ho, Volta Region, Ghana. Open Journal of Applied Sciences.

(Full list: <https://www.researchgate.net/profile/Joseph-Otoo>)

Workshops & Training

- 2025 **Building a Climate Cohort to Monitor Health Impacts of Climate Change in Ghana**, a workshop organized by Kintampo Health Research Centre.
- 2024 **FPP.2x: Financial Programming and Policies, Part 2: Program Design**, a course of study offered by IMFx, an online learning initiative of the International Monetary Fund.
- 2019 **Gaussian Processes and Applications in Machine Learning Workshop**, organized by African Institute of Mathematical Sciences (AIMS) Ghana.
- 2017 **Stochastic Optimal Control and Application (SOCA) Workshop with School**, organized by African Institute of Mathematical Sciences (AIMS) Ghana.

Achievements & Awards

- 2025 **The Climate and Health Evaluation for Adaptive Resilience (CLEAR) PhD Scholarship**, implemented by the Kintampo Health Research Centre (KHRC).
- 2021 **Won Global Challenge Lab 2021 on UN Sustainable Development Goal 3: Good Health and Wellbeing**, organized by Imperial College London.

References

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