

Survival Analysis to Artificial Intelligence: A Mathematical Journey Towards Better Health in Africa

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Mathematics provides a powerful foundation for addressing some of the world's most pressing challenges. In this talk, I share my journey from studying Mathematics to becoming a researcher applying mathematics, statistics, machine learning, and artificial intelligence to improve health outcomes in Africa. I reflect on the opportunities, barriers, and lessons learned as a Black woman in the mathematical sciences, highlighting the importance of funding, mentorship, resilience, and international collaborations. The technical component of the talk showcases my research on statistical and machine learning methods for time-to-event (survival) data. I discuss how classical survival models, random survival forests, and interpretable deep learning approaches can be used to predict maternal and child health outcomes, with a particular focus on under-five mortality in Sub-Saharan Africa. By integrating rigorous statistical methodology with modern artificial intelligence, my research aims to improve predictive accuracy while maintaining interpretability for clinicians, policymakers, and public health practitioners. This presentation illustrates how the mathematical sciences can drive innovation in healthcare and contribute to achieving the Sustainable Development Goals, while inspiring the next generation of Black mathematicians to pursue research with meaningful societal impact.