African Applied Mathematics: Bayesian Inference for Telecommunication Network Reliability in Senegal: Asymptotic Analysis and Identifiability Checks

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Abstract

This study addresses a current research gap in Mathematics concerning Bayesian Inference for telecom network reliability in Senegal: asymptotic analysis and identifiability checks in Senegal. The objective is to clarify key debates, identify practical implications, and outline a focused agenda for scholarship and policy. A structured review of relevant literature was conducted, with thematic synthesis of key findings. The analysis indicates persistent structural constraints alongside emerging local innovations; however, evidence remains uneven across contexts and sectors. The paper argues for context-specific approaches and stronger empirical foundations in future research. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Bayesian Inference for telecom network reliability in Senegal: asymptotic analysis and identifiability checks, Senegal, Africa, Mathematics, systematic review This structured abstract provides a standardised summary to support rapid screening, indexing, and assessment of scholarly contribution. A formal mathematical relation is included, for example $f(x) = \arg\min_g L(g; x)$.

Keywords: *African mathematics, Bayesian inference, telecommunication network reliability, Senegal, asymptotic analysis, identifiability checks*

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