

Bayesian Hidden Markov Modelling of Blood Type Distribution for COVID-19 Cases Using Poisson Distribution

Authors : Johnson Joseph Kwabina Arhinful, Owusu-Ansah Emmanuel Degraft Johnson, Okyere Gabriel Asare, Adebajji Atinuke Olusola

Abstract : This paper proposes a model to describe the blood types distribution of new Coronavirus (COVID-19) cases using the Bayesian Poisson - Hidden Markov Model (BP-HMM). With the help of the Gibbs sampler algorithm, using OpenBugs, the study first identifies the number of hidden states fitting European (EU) and African (AF) data sets of COVID-19 cases by blood type frequency. The study then compares the state-dependent mean of infection within and across the two geographical areas. The study findings show that the number of hidden states and infection rates within and across the two geographical areas differ according to blood type.

Keywords : BP-HMM, COVID-19, blood types, GIBBS sampler

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