Nonparametric Changepoint Detection in Multiple Count Time Series based on the Forward Search Algorithm

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Abstract:

Count processes like prevalence of diseases in different areas are usually governed by similarly behaving systems (efforts from the government, living conditions of communities, etc.) and should be accounted in modeling. We postulate a Poisson Autoregressive PAR(p) model for a multiple count time series model. Since real-life count processes are oftentimes vulnerable to changes brought by various activities by different stakeholders, it is imperative for modelers to detect such changes. A nonparametric changepoint detection algorithm using the forward search algorithm based on the sum of two squared standardized fit statistics as an influence measure is proposed.

Keywords:
changepoint; forward search; nonparametric;