

MODELING CORRELATED DURATIONS AND THEIR MARKS JOINTLY USING MIXTURE TRANSITION MODELS

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Marked point processes have wide range of applications including financial transactions, occurrence of accidents, events that occur irregularly with associated 'marks'. Such processes have been studied as stochastic processes in the literature but few statistically. These processes include the Poisson marked point processes. Inter-arrival times for the Poisson marked point processes are usually assumed to be exponentially distributed but a Weibull distribution with general shape parameter also fits very well. In this paper, we consider a Poisson marked point process in a joint modeling for inter-arrival times and the marks using bivariate mixture transition models and comparing the assumptions when inter-arrival times follow Weibull, Exponential or Rayleigh.

Keywords: Poisson Marked Point Processes, Bivariate Mixture Transition Model, Polish Space

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