

A New Multivariate Zero-Inflated Poisson Model with Applications

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Abstract. In this paper, a new multivariate zero-inflated Poisson distribution is proposed to model correlated multivariate count data with extra zeros. The distributional theory and corresponding properties are developed. Maximum likelihood estimates of parameters are obtained by the EM algorithm. Confidence intervals for parameters of interest and testing hypotheses are provided. Bayesian methods are also presented. Two real medical data sets are used to illustrate the proposed methods.

Keywords: Zero-inflated Poisson distribution.