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TWO-COMPONENT MIXED LAPLACE MODEL FOR MICROARRAY GENE EXPRESSION DATA

Bindu Punathumparambath and Kannan V. M.

Abstract

DNA microarrays have been used as an important tool for studying the expression levels of thousands of genes simultaneously. These experiments allow us to compare two different samples of cDNA obtained under different conditions. In this work, we propose the two-component Mixed Laplace distribution as an approximation for the log-ratios of the measured gene expression across genes. This distribution is tested successfully for two different microarray datasets. The maximum likelihood estimation procedure is employed to estimate the parameters of the proposed distribution and an algorithm in R package is developed to carry out the estimation. Finally, we are applied the model to microarray gene expression data.

Keywords and phrases: Laplace distribution, microarray gene expression, mixed Laplace.
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