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Title:

**Bivariate change point detection – joint detection of changes  
in expectation or variance**

Abstract:

A method for the detection of change points in univariate sequences is presented. Particularly we focus on the detection of both changes in expectation and changes in variance. For that we exploit the joint dynamics of the empirical mean and the empirical variance in the context of moving sum statistics. The bivariate setup helps to overcome flawed change point inference as compared to separate univariate approaches. Asymptotic results about the moving sum statistics support change point estimation and facilitate interpretation. Further, simulation studies demonstrate a strong performance of the developed methodology.