

Abstract

One method to estimate the intensity of inhomogeneous Poisson processes, suggested by Fryzlewicz and Nason in [*J. Comput. Graph. Statist.* 13 (2004)(3)], is first to preprocess the data using the so-called Haar–Fisz transform and then to apply wavelet methods to the outcome of the first step. For this procedure it is necessary, that the outcomes of the preprocessing step can be approximated by a normal distribution. In this paper we establish the necessary weak convergence results for the case of inhomogeneous Poisson processes which show that the outcome of the preprocessed data can be approximated by Gaussian random variables and wavelet shrinkage with a global threshold may be applied. A small simulation studies the application to shot-noise models. It suggests that this method is able to detect small peaks while at the same time it does not over-smooth large peaks in comparison with kernel estimators or standard wavelet estimators.