Tchebichef moment based restoration of Gaussian blurred images

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Abstract

With the knowledge of how edges vary in the presence of a Gaussian blur, a method that uses low-order Tchebichef moments is proposed to estimate th parameters: sigma (σ) and size (w). The difference between the Tchebichef moments of the original and the reblurred images is used as feature vectors t train an extreme learning machine for estimating the blur parameters (σ, w). The effectiveness of the proposed method to estimate the blur parameters examined using cross-database validation. The estimated blur parameters from the proposed method are used in the split Bregman-based image restora algorithm. A comparative analysis of the proposed method with three existing methods using all the images from the LIVE database is carried out. The res show that the proposed method in most of the cases performs better than the three existing methods in terms of the visual quality evaluated using the structural similarity index.