عنوان مقاله:

Face Detection Based on Information Theoretic Tools

محل انتشار:

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

In this paper we describe a novel technique for face detection,which can be extended to the general problem of object detection. Our technique is based on Viola and Jones rapid object detection scheme [1], but with some extensions using information theoretic tools. Firstly, a novel set of rectangular features based on local image entropy is introduced. These novel features are significantly outperform the simple Haar-like features of [1] and can also be calculated efficiently. Secondly, a learning algorithm based on conditional mutual information maximization is developed which is capable of selecting a small number of critical features from a larger set, extremely fast and efficient. By picking features which maximize their mutual information with the class to predict while minimize the redundancy to any feature already selected; our learning strategy ensures the selection of features which are both individually informative and two-by-two weakly dependent. The final strong classifiers take the form of a Bayesian as a weighted combination of selected features followed by a threshold. Cascade of strong classifiers is also created to improve the performance of detection rates and reduce the computational time. Set of experiments on MIT face dataset validate the robustness of our techniques.

کلمات کلیدی:

Face detection, Haar wavelet, Information theory, MIT face dataset

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