SMART REACH
(S/W CREATORS & TRAINERS)

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Camera Model Identification Based on the Heteroscedastic Noise Model

Abstract:

The goal of this paper is to design a statistical test for the camera model identification problem. The approach is based on the heteroscedastic noise model, which more accurately describes a natural rawimage. This model is characterized by only two parameters, which are considered as unique fingerprint to identify camera models. The camera model identification problem is cast in the framework of hypothesis testing theory. In an ideal context where all model parameters are perfectly known, the likelihood ratio test (LRT) is presented and its performances are theoretically established. For a practical use, two generalized LRTs are designed to deal with unknown model parameters so that they can meet a prescribed false alarm probability while ensuring a high detection performance. Numerical results on simulated images and real natural raw images highlight the relevance of the proposed approach.