

Evaluation of Sensor Pattern Noise Estimators for Source Camera Identification

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Abstract : This paper presents a comprehensive survey of recent source camera identification (SCI) systems. Then, the performance of various sensor pattern noise (SPN) estimators was experimentally assessed, under common photo response non-uniformity (PRNU) frameworks. The experiments used 1350 natural and 900 flat-field images, captured by 18 individual cameras. 12 different experiments, grouped into three sets, were conducted. The results were analyzed using the receiver operator characteristic (ROC) curves. The experimental results demonstrated that combining the basic SPN estimator with a wavelet-based filtering scheme provides promising results. However, the phase SPN estimator fits better with both patch-based (BM3D) and anisotropic diffusion (AD) filtering schemes.

Keywords : sensor pattern noise, source camera identification, photo response non-uniformity, anisotropic diffusion, peak to correlation energy ratio

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