Abstract

In the fields such as forensics, medical imaging, e-commerce, and industrial photography, authenticity and integrity of digital images is essential. Digital images are becoming prime focus of work for the researchers. Typical image forensics includes source device identification, source device linking, and classification of images taken by unknown cameras, integrity verification, and authentication. Source camera identification provides different techniques to identify the characteristics of the digital devices used. Study of these techniques has been done as literature survey work; from this sensor imperfection based technique is chosen. Sensor pattern noise (SPN), carries abundance of information along a wide frequency range allows for reliable identification in the presence of many imaging sensors. Our proposed system
Improvements on Sensor Noise based on Source Camera Identification using GLCM

consists of a novel technique used for extracting sensor noise from the database images, and then the feature extraction method is applied to extract the features. The model used for extracting sensor noise consists of use of Gradient based operators and Laplacian operators, a hybrid system consisting of best results from the above two operators obtain a third image giving the edges and noise present in it. The edges are removed by applying threshold to get the noise present in the image. This noisy image is then provided to the feature extraction module consisting of Gray level Co-occurrence Matrix (GLCM) and Discrete Wavelet Transform (DWT). A feature set of extracted features from the above techniques is obtained and used as the matching set for classification purpose. The KNN classifier is used for matching the images of test data set with the training dataset.

References

Improvements on Sensor Noise based on Source Camera Identification using GLCM


Index Terms
Computer Science
Image Processing

Keywords
Image Forensics
Source Camera Identification
Pattern Noise.