ABSTRACT

Copy-move forgery is one among the foremost commonly used manipulations for tampering digital images. Key point-based detection methods are reported to be very effective in revealing copy-move evidences, due to their robustness against various attacks, like large-scale geometric transformations. However, these methods fail to handle the cases when copy-move forgeries only involve small or smooth regions, where the number of key points is extremely limited. This project proposes a new fragile watermarking based scheme for image authentication and self-recovery for image applications. The proposed scheme locates image tampering and also recovers the original image. A host image is broken into 4×4 blocks and SVD decomposition is applied by inserting the traces of block wise SVD into the least significant bit (LSB) of the image pixels to work out the transformation within the original image. Two authentication bits namely block authentication and self-recovery bits are used to survive the vector quantization attack. The insertion of self-recovery bits is decided with Arnold transformation, which recovers the original image even after a high tampering rate. SVD-based watermarking information improves the image authentication and provides how to detect different attacked area of the watermarked image. The proposed scheme is tested against different types of attacks like text removal attack, text insertion attack, copy and paste attack. Compared to the state-of-the art methods, the proposed scheme greatly improves each tamper localization accuracy and in addition to the Peak Signal to Noise Ratio (PSNR) of self-recovered image.