A Passive Digital Video Authentication Technique Using Wavelet Based Optical Flow Variation Thresholding

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Abstract : Detecting the authenticity of a video is an important issue in digital forensics as Video is used as a silent evidence in court such as in child pornography, movie piracy cases, insurance claims, cases involving scientific fraud, traffic monitoring etc. The biggest threat to video data is the availability of modern open video editing tools which enable easy editing of videos without leaving any trace of tampering. In this paper, we propose an efficient passive method for inter-frame video tampering detection, its type and location by estimating the optical flow of wavelet features of adjacent frames and thresholding the variation in the estimated feature. The performance of the algorithm is compared with the z-score thresholding and achieved an efficiency above 95% on all the tested databases. The proposed method works well for videos with dynamic (forensics) as well as static (surveillance) background.