Abstract

Many valuable data in a video can be lost because of atmospheric distortion such as mirage, haze, fog, etc. This is a challenge in video surveillance system. We propose complex wavelet fusion for atmospheric turbulence algorithm for this purpose. This algorithm consists of series of steps to extract the information from the video. Frame selection method is used for selection of informative ROI only from good quality frame. These ROI were then fused to get the required objects. The fusion is performed in the Dual Tree Complex Wavelet Transform (DT-CWT) which employs two different real discrete wavelet transforms (DWT) to provide the real and imaginary parts of the CWT. Finally Haze removal is done by using dark channel prior mechanism. The proposed method is shown to significantly enhance the visual quality in a range of video surveillance.
Stabilizing Atmospheric Turbulence in a Video Surveillance using Dual Tree Complex Wavelet Fusion


Index Terms

Computer Science

Image Processing

Keywords

Turbulence

Restoration

Mitigation

Segmentation