Comparative Analysis on Feature Descriptor Algorithms to Aid Video Stabilization and Smooth Boundary Reconstruction using In-painting and Interpolation

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Abstract

This paper presents a fast and efficient video stabilization method based on the Speeded-up robust features (SURF). We adopted speeded-up robust features as feature descriptor, which are extracted and tracked in each frame. This extracted features are matched through SURF, matched features were used to estimate the geometric transformation between the frames. Finally estimated transformation is applied to the frames to produce a new stabilized frame pair. After the geometric transformation is carried out, the resultant frames are almost stable. But the boundary region of stabilized frames requires a lot more attention as they are said to be black and some sort of filtering and inpainted work needs to be performed for better results and reconstruction of the obtained stabilized frames. Hence in the obtained stabilized frames, we need to estimate the exact location of the regions at the boundary where inpainting work is to be carried out. Experimental results illustrate superior performance of the SURF based video stabilization in terms of accuracy and speed as compared to other state of art algorithms based stabilization method.
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References


Index Terms

Computer Science  Algorithms
Keywords

Video Stabilization, Inpainting, SURF.