

Detection of Image Blur and Its Restoration for Image Enhancement

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Abstract : Image restoration in the process of communication is one of the emerging fields in the image processing. The motion analysis processing is the simplest case to detect motion in an image. Applications of motion analysis widely spread in many areas such as surveillance, remote sensing, film industry, navigation of autonomous vehicles, etc. The scene may contain multiple moving objects, by using motion analysis techniques the blur caused by the movement of the objects can be enhanced by filling-in occluded regions and reconstruction of transparent objects, and it also removes the motion blurring. This paper presents the design and comparison of various motion detection and enhancement filters. Median filter, Linear image deconvolution, Inverse filter, Pseudoinverse filter, Wiener filter, Lucy Richardson filter and Blind deconvolution filters are used to remove the blur. In this work, we have considered different types and different amount of blur for the analysis. Mean Square Error (MSE) and Peak Signal to Noise Ration (PSNR) are used to evaluate the performance of the filters. The designed system has been implemented in Matlab software and tested for synthetic and real-time images.

Keywords : image enhancement, motion analysis, motion detection, motion estimation

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