MULTIRESOLUTION MOTION ESTIMATION FOR OMNIDIRECTIONAL IMAGES (TueAmOR8)

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Abstract :

This paper presents a novel local motion estimation algorithm for omnidirectionnal images. The algorithm captures correlation between two spherical images of a scene, taken from arbitrary viewpoints, with the objective to reduce the encoding rate of these images. It first performs a multiresolution decomposition of the spherical images, in order to improve the consistency of the motion estimation, with a limited computational complexity. Then, it determines pairs of similar solid angles and matches blocks of the two omnidirectional images, directly in the spherical domain. This approach allows a simple motion estimation implementation, that avoids potential discrepancies induced while unfolding omnidirectional images to implement a classical motion estimation on images. The proposed algorithm is shown to provide a quite efficient image prediction, and the prediction error is almost exclusively composed of high frequency noise.

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