Poster Snapshot

Image Registration for Zooming: A Statistically Consistent Local Feature Mapping Approach

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Image registration is a widely used tool for matching two images of the same scene with one another. In the literature, several image registration techniques are available to register rigid body as well as non-rigid body transformations. One such important transformation is zooming. There are very few feature-based methods that address this particular problem. These methods fail miserably when there are only a limited number of point features available in the image. This paper proposes a feature-based approach that works with a feature that is readily available in almost all images, for registering two images of the same image object where one is a zoomed-in version of the other. In the proposed method, we first detect the possible edge points which we consider as features in both the reference and the zoomed image. Then, we map these features of the reference and the zoomed image with one another and find the relationship between them using a mathematical model. Finally, we use the relationship to register the zoomed-in image. This method outperforms some of the state-of-the-art methods in many occasions. Several numerical examples as well as some statistical properties justify that this method works well in many applications.