Image Mosaicing based on Neural Networks

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Abstract

The main concept behind image mosaic is image registration. In image mosaicing several overlapping images are assembled in order to constitute one panoramic image. In this paper a new feature-based approach will be presented for automated image to image registration and mosaicing. The proposed method is implemented on real complex images. The proposed method is based on five main steps. First, the Harris algorithm is used to extract the feature points in the reference and sensed images. Second, feature matching is established using the Euclidean distance of the signature vectors obtained using pulse coupled neural network (PCNN). Third, transformation parameters are obtained using the least-square rule based on general affine transformation. Fourth, the image resampling and transformation are performed using bilinear interpolation to get the registered image. Finally, the mosaicing image is obtained. Experimental results show that the proposed algorithm shows excellent results when applied and tested on real complex images.
References


Index Terms

Computer Science  Artificial Intelligence

Keywords

Registration, Mosaicing, Reference image, Sensed image, Affine transformation, Pulse Coupled Neural Network (PCNN) and blending.