World Academy of Science, Engineering and Technology
International Journal of Electronics and Communication Engineering
Vol:8, No:01, 2014

Objects Tracking in Catadioptric Images Using Spherical Snake

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Abstract : Tracking objects on video sequences is a very challenging task in many works in computer vision applications. However, there is no article that treats this topic in catadioptric vision. This paper is an attempt that tries to describe a new approach of omnidirectional images processing based on inverse stereographic projection in the half-sphere. We used the spherical model proposed by Gayer and al. For object tracking, our work is based on snake method, with optimization using the Greedy algorithm, by adapting its different operators. The algorithm will respect the deformed geometries of omnidirectional images such as spherical neighborhood, spherical gradient and reformulation of optimization algorithm on the spherical domain. This tracking method that we call "spherical snake" permitted to know the change of the shape and the size of object in different replacements in the spherical image.

Keywords : computer vision, spherical snake, omnidirectional image, object tracking, inverse stereographic projection
Conference Title : ICISP 2014 : International Conference on Imaging and Signal Processing
Conference Location : Istanbul, Türkiye
Conference Dates : January 27-28, 2014