

A Comparison of Image Data Representations for Local Stereo Matching

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Abstract : The stereo matching problem, while having been present for several decades, continues to be an active area of research. The goal of this research is to find correspondences between elements found in a set of stereoscopic images. With these pairings, it is possible to infer the distance of objects within a scene, relative to the observer. Advancements in this field have led to experimentations with various techniques, from graph-cut energy minimization to artificial neural networks. At the basis of these techniques is a cost function, which is used to evaluate the likelihood of a particular match between points in each image. While at its core, the cost is based on comparing the image pixel data; there is a general lack of consistency as to what image data representation to use. This paper presents an experimental analysis to compare the effectiveness of more common image data representations. The goal is to determine the effectiveness of these data representations to reduce the cost for the correct correspondence relative to other possible matches.

Keywords : colour data, local stereo matching, stereo correspondence, disparity map

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