论文

基于SIFT特征的两阶段procrustes迭代匹配算法

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摘要：

以得到尽量准确的图像SIFT(Scale Invariant Feature Transform)特征点之间的匹配关系为目的，给出了一种基于SIFT特征的两阶段procrustes迭代匹配方法。该方法首先基于图像SIFT描述向量得到图像SIFT特征点之间的初始匹配关系，初始匹配的特征点之间存在较多的错误匹配特征点对，然后利用特征点之间全局的几何约束采用第一阶段的procrustes迭代匹配方法去除错误匹配的特征点对，这时部分正确的匹配特征点对也可能被去除，最后利用另一个procrustes迭代匹配过程找回被去除的正确匹配特征点对。仿真实验表明，本文的方法有效去除了SIFT描述向量匹配中存在的错误匹配点对，并能找回被去除的正确匹配点对，得到图像特征点之间正确的匹配关系。

关键词： 局部不变特征 尺度不变特征变换 特征匹配 图像匹配

A Two Stage Iterative Procrustes Matching Algorithm Based on SIFT Feature

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Abstract:

In order to obtain the correct matching pairs of SIFT (Scale Invariant Feature Transform) feature of two images， which seems to be the most appealing descriptor for practical uses according to a recent comprehensive test result on large scale database， this paper proposes a two stages iterative procrustes matching method. Firstly this method finds the initial matching SIFT feature pairs based on SIFT descriptors， there usually give rise to many mis-matching feature pairs in this case. Considering the distribution information of the SIFT features， the first iterative procrustes matching stage is used to discard the mis-matching feature pairs efficiently. Unfortunately some correct matching feature pairs would also be discarded in this stage. In the end， the second iterative procrustes matching stage is used to find back those correct matching feature pairs， which are discarded in the process of the first stage. Experimental results show that the algorithm can not only discard those mis-matching feature pairs existed in the initial matching results efficiently， but also find back those correct matching feature pairs perfectly.

Keywords: Local invariant feature Scale invariant feature transform Feature matching Image matching

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