基于邻域曲率的分支定界点云配准方法

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摘要： 点云配准是点云驱动图形学中的重要问题，其配准精度与效率直接影响后期的建模.针对多视角点云模型结合邻域曲率特征和分支定界方法提出一种新的点云配准算法.引入归一化互相关系数度量点云邻域曲率相似度，构造匹配点数组.并用最小二乘模型求取点云配准变换参数得到初始配准参数；通过分支定界法进行精准配准以得到全局最优解.实验表明该算法对于曲率变化显著的点云能够快速收敛，并且能够保证全局最优解.
关键词： 全局配准；归一化互相关系数；分支限界算法；曲率

Branch and Bound Point Cloud Algorithm Registration Based on Neighborhood Curvature Features

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Abstract： Point cloud registration plays an important role in points-drive computer graphics as it affects modling quality directly.Aiming at the registration of multi-view point cloud data，It proposes a new registration method based on Branch and Bound(BNB)point cloud algorithm and neighborhood curvature features.The method introduces a new Zero -mean Normalized Cross-correlation Coefficient (ZNCC) to measure curvature similarity of the neighborhood of a point. The initial matching points is built.The transformation parameters of point cloud registration are obtained by the least square model, and the initial registration parameters are obtained .The global optimum solution is obtained by branch and bound method.The results show that the proposed algorithm can converge quickly to point clouds with apparent curvature features, and get the global optimum solution.

Key words： globally optimal registration；zero-mean normalized cross-correlation coefficient(ZNCC)；branch and bound (BNB) ；curvature

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