

论文与报告

## 基于Co-motion的可见光--热红外图像序列自动配准算法

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摘要

提出了一种基于Co-motion的可见光--热红外图像序列自动配准方法, 引入Co-motion运动统计特征来解决异源图像序列配准问题, 从而避开了异源图像相似图像特征提取和精确运动检测的难题. 由于可见光和热红外成像机理不同, 在运用运动统计特征时, 会面临与同源配准不同的诸多问题, 如难以提取相似前景、大量外点干扰和易受大尺度变化的影响等. 本文通过对所面临难题的分析 提出了适合于异源图像序列配准的同名点对选取方法和外点去除方法, 并精确迭代优化变换模型. 对俄亥俄州大学红外--可见光数据库和自建数据库共8组数据的实验分析结果表明, 该算法在大尺度、旋转、平移及视场角变化下均能精确配准.

关键词 [图像配准](#) [Co-motion](#) [可见光图像序列](#) [热红外图像序列](#)

分类号

## Automatic Visual-thermal Image Sequence Registration Based on Co-motion

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Abstract

An automatic visual--thermal image sequence registration method based on co-motion was proposed. Different from other methods, co-motion (concurrent motions) statistics feature was adopted to regist heterogeneous image sequences. Compared with registration based on co-motion between homogeneous image sequences, our method faced many difficulties. By analyzing the difficulties, we proposed the corresponding point pairs extraction method and outliers removal method, which are suitable to visual--thermal image sequence. We demonstrated the performance of the method on eight groups of visual--thermal synchronous video sequences, and the results showed that the proposed algorithm carried out precise image registration under the change of image rotation, translation, scaling and viewing angle. Experiments demonstrated the accuracy and robustness of the proposed method.

Key words [Image registration](#) [concurrent motion \(co-motion\)](#) [visual image sequence](#) [thermal image sequence](#)

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