

工程与应用

利用机场现有设施的机载单目视觉助降测量方法

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摘要 为了满足航空器在降落导航中的数据需求, 对利用机场现有设施(跑道、信号灯等)的机载单目视觉助降测量方法进行了研究, 并推导出了相应的投影关系。当航空器飞行至机场附近时, 只要机载单目摄像机能够拍摄到若干现有机场设施且已知这些点线特征的大地坐标, 即可在图像上提取相应的点线特征, 并依据投影关系测量计算出拍摄时刻航空器的位置和姿态参数。由于不需要人为在机场附近布置测量标志物, 极大地提高了方法应用的灵活性。仿真结果证明方法有效可行。

关键词 [单目视觉](#) [视觉助降](#) [图像测量](#) [机场现有设施](#)

分类号

Airborne monocular vision-aided landing measurement using existent installations in airport

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Abstract

To satisfying the data demand in landing navigation of aircraft, the method of airborne monocular vision-aided landing measurement using existent installations (runway, signal lamps, etc.) in airport is discussed, and specific projective relation is brought out. When aircraft approaching the airport, as long as camera can catch several existent installations and world-coordinates of which are known, current positions and attitudes of aircraft can be measured using projection relation by selecting corresponding point and line features. Without the necessity for manmade signs makes the method more flexible. Simulation experiments show that it is practical and effective.

Key words [monocular vision](#) [vision-aided landing](#) [image-based measurement](#) [existent installations in airport](#)

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