[1]张红良,朱宪伟,张小虎,等.同帧画幅目标相对位置的单目摄像测量方法[J].弹箭与制导学报,2014,2:9-11.

ZHANG Hongliang,ZHU Xianwei,ZHANG Xiaohu,et al.A Monocular Videometric Measurement Method for Targets Position Difference in Same-frame Film[J].,2014,2:9-11.

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同帧画幅目标相对位置的单目摄像测量方法(PDF)

《弹箭与制导学报》[ISSN:1673-9728/CN:61-1234/TJ] 期数: 2014年第2期 页码: 9-11 栏目: 导弹与制导技术 出版日期: 2014-05-12

Title: A Monocular Videometric Measurement Method for Targets Position Difference in Same-frame Film

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关键词: 同帧画幅; 相对位置; 摄像测量; 单目

Keywords: same-frame film; position difference; videometric; monocular

分类号: TJ013

DOI: -

文献标识码: A

摘要: 同帧画幅目标相对位置测量是一类重要的靶场测试。文中提出了一种同帧画幅目标相对位置的单目摄像测量方法,首先采用单目跟踪测量一个目标的位置、速度等信息,然后分别基于两条假设:同帧画幅新目标在原目标速度方向上、新目标与原目标到像机的距离相同,推导了目标相对位置测量方法。仿真实验结果表明文中提出的方法能够高精度的测量同帧画幅目标相对位置。

Abstract: The position difference measurement for targets in the same-frame film is an important shooting range test. In this paper, a monocular videometric method was proposed to measure the targets position difference in the same-frame film. First, a target in the same-frame film was tracked using a monocular camera and its position and velocity were measured using a monocular trajectory intersection method. Then the position difference measurement method was derived between the target tracked and the new target in the same-frame film based on two hypotheses respectively that the new target was on the moving way of the tracked target and the distance between the new target and the measurement camera equal to that between the tracked target and the camera. Some simulations were performed. The results show that the monocular videometric measurement method proposed in this paper can measure the

targets position difference in the same-frame film accurately.

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备注/Memo: 收稿日期:2013-05-30

基金项目:国家自然科学基金(60904084; 11272347)资助

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更新日期/Last Update: 2014-05-22