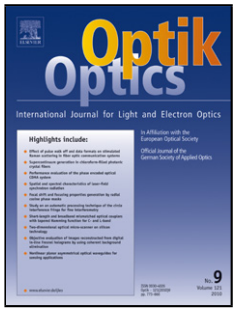
Accepted Manuscript



Title: Adaptive edge-based mean shift for drastic change gray target tracking

Author: Haichao Zheng Xia Mao Lijiang Chen Xiaogeng Liang

PII: S0030-4026(15)00713-5
DOI: http://dx.doi.org/doi:10.1016/j.ijleo.2015.07.160
Reference: IJLEO 55876

To appear in:

Received date: 3-7-2014
Accepted date: 26-7-2015

Please cite this article as: H. Zheng, X. Mao, L. Chen, X. Liang, Adaptive edge-based mean shift for drastic change gray target tracking, *Optik - International Journal for Light and Electron Optics* (2015), http://dx.doi.org/10.1016/j.ijleo.2015.07.160

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Adaptive edge-based mean shift for drastic change gray target tracking

Haichao Zheng,[a] Xia Mao,[a] Lijiang Chen,[a,*] Xiaogeng Liang[a,b]

[a]Beihang University, School of Electronic and Information Engineering, No. 37, XueYuan Road, Beijing, China, 100191

[b]Luoyang Photoelectric Technology Development Center, No. 160, South JieFang Road, Luoyang, China, 471009

Abstract. Numerous tracking approaches have been proposed recently, however, existing approaches can hardly be applied to drastic change gray target tracking because of their vulnerability to unsmooth motion and appearance discontinuity caused by drastic change gray target. We aim to address this problem by proposing an adaptive edge-based mean shift algorithm, where edges are utilized as feature rather than intensity. We propose a method to construct the feature space by employing a combination of edge images to overcome the inadequate representation of single edge feature space. The feature space provides sufficient information for representing targets. In addition, a detection module is proposed to cope with targets whose gray value distributions change drastically. The detection module can detect the target in a specific region which is automatically adjusted according to the target size of former frame; therefore it offers our algorithm the ability to obtain precise target region and target position. By automatically updating the tracker using currently detected target information, our algorithm becomes adaptive to the changes in target's size and shape. Intensive experiments show that our algorithm outperforms state-of-the-art algorithms in tracking drastic change gray targets.

Keywords: Target tracking, edge-based mean shift, gray target, drastic change.

* Corresponding author. Tel.: +86-010-8231-6385; fax: +86-010-8233-9508.
E-mail address: clj@ee.buaa.edu.cn.

Accepted Manuscript

Download English Version:

https://daneshyari.com/en/article/846073

Download Persian Version:

https://daneshyari.com/article/846073

Daneshyari.com