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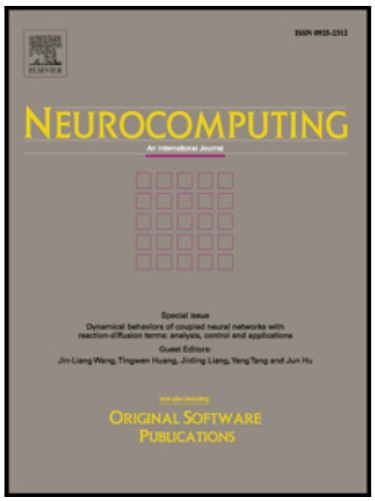

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Robust Objectness Tracking with Weighted Multiple Instance Learning Algorithm

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Abstract

A novel improved online weighted multiple instance learning algorithm(IWMIL) for visual tracking is proposed. In the IWMIL algorithm, the importance of each sample contributing to bag probability is evaluated based on the objectness estimation with object properties (superpixel straddling). To reduce the computation cost, a coarse-to-fine sample detection method is employed to detect sample for a new arriving frame. Then, an adaptive learning rate, which exploits the maximum classifier score to assign different weights to tracking result and template, is presented to update the classifiers. Furthermore, an object similarity constraint strategy is used to estimate tracking drift. Experimental results on challenging sequences show that the proposed method is robust to occlusion and appearance changes.

Keywords: objectness, weighted multiple instance learning algorithm, adaptive learning rate, object similarity constraint, object tracking

1. Introduction

The goal of visual object tracking is to estimate the object state in consecutive frames. It is an important research subject in computer vision with a wide

☆Fully documented templates are available in the elsarticle package on CTAN.
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