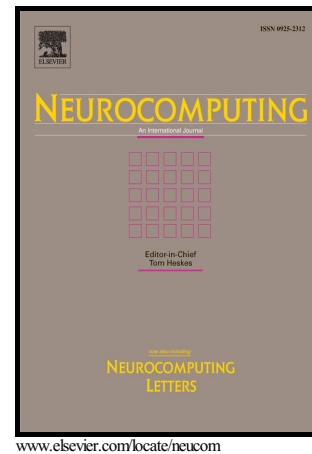


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Robust lifelong visual tracking using compact binary feature with color attributes

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Abstract

In this paper, we address the problem of visual tracking where the target object undergo appearance variations due to illumination variation, occlusion, motion, background clutter and deformation. To deal with the significant appearance variations, we introduce color attributes into traditional shape feature at cell level, the new feature representation takes into consideration both its photometric invariance as well as its discriminative power. We construct compact binary code for the shape-color feature to reduce the high dimensions, and update the hash function in an online manner. A discriminative lifelong learning model is built to construct an appearance model that optimally separates the object from its surrounds. The lifelong learner uses the shared latent basis to transfer historical observations to simple classifier while a new frame arrives. Experimental results on tracking benchmark demonstrate that the proposed tracking algorithm outperforms state-of-the-art methods.

Keywords: Visual tracking, lifelong learning, compact binary code, color attributes

1. Introduction

Visual tracking has been one of the most fundamental and active problems in computer vision with numerous applications such as security and

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