VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELGAUM

A
Project report
on

"On-line Object Tracking Using ℓ_1 Regularization"

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ABSTRACT

Online object tracking is a challenging problem as it entails learning an effective model to account for appearance change caused by intrinsic and extrinsic factors. A novel online object tracking algorithm with sparse prototypes is introduced, which exploits both classic principal component analysis (PCA) algorithms with recent sparse representation schemes for learning effective appearance models.

ℓ_1 regularization into the PCA reconstruction is introduced and a novel algorithm to represent an object by sparse prototypes that account explicitly for data and noise is developed. For tracking, objects are represented by the sparse prototypes learned online with update.

In order to reduce tracking drift, a method is presented that takes occlusion and motion blur into account rather than simply includes image observations for model update. Both qualitative and quantitative evaluations on challenging image sequences demonstrate that the proposed tracking algorithm performs favorably against several state-of-the-art methods.