

Adaptive Online Object Tracking via Positive and Negative Models Matching

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Abstract : To improve tracking drift which often occurs in adaptive tracking, an algorithm based on the fusion of tracking and detection is proposed in this paper. Firstly, object tracking is posed as a binary classification problem and is modeled by partial least squares (PLS) analysis. Secondly, tracking object frame by frame via particle filtering. Thirdly, validating the tracking reliability based on both positive and negative models matching. Finally, relocating the object based on SIFT features matching and voting when drift occurs. Object appearance model is updated at the same time. The algorithm cannot only sense tracking drift but also relocate the object whenever needed. Experimental results demonstrate that this algorithm outperforms state-of-the-art algorithms on many challenging sequences.

Keywords : object tracking, tracking drift, partial least squares analysis, positive and negative models matching

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