Object representation and tracking

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Abstract

The knowledge of the objects' types and position helps semantic scene interpretation, indexing events and mining video collections. However, the annotation of a video in terms of its component objects is as good as the object detection and tracking algorithm(s) that it is based upon. The quality of a detection and tracking algorithm depends in turn on its capability of localizing objects of interest (object categories) and on tracking them over time. We will analyse a number of object representations suitable for tracking and look at the trade-off between descriptiveness and robustness to scaling, rotation and partial occlusions. Moreover, we will look at the integration of object detectors in a tracking process. During the tutorial we will address the following questions: How can you efficiently represent an object for tracking? How can you use temporal information to improve the representation of an object? How can object detection and temporal filtering interact to improve the tracking performance?

Syllabus: object representation, object tracking, object detection