

Multiple Object Tracking

Gowth AM Ganesh. E¹, Jason Selvakumar. J², Mohamed Ali. B³

Department of Computer Science and Engineering^{1,2,3}

SRM Institute of Science and Technology, Vadapalani, Chennai, India

Abstract: *Detecting and tracking multiple objects in real-time video sequences is a difficult task in computer vision due to the need to handle occlusions, changes in appearance, and other factors that may impede precise tracking. The paper proposes a method for tracking multiple objects in a video, even when the number of objects is unknown and changes over time. This is achieved by combining object detection and tracking using a graph structure, which maintains multiple hypotheses about the objects' number and trajectories in the video. The graph structure is updated using image information, and the best hypothesis is chosen to explain the video. The tracking process acts as a temporal detection that confirms and validates the object detections over time, making a global decision across the video. The method also integrates object detection and tracking by providing feedback in the form of object location predictions to the object detection module. The final output is the most likely hypothesis from the multiple objects tracking process. The proposed method is evaluated experimentally to assess its performance*

Keywords: multiple objects