Tracking and Detection of Moving Objects in Car Traffic Supported by the Artifical Intelligence System

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Abstract

In our investigations we classify the problem of moving object detection without any knowledge. Therefore, we propose new techniques that will allow moving object detection on the real time. Detection of moving objects acquired by moving camera requires standard preprocessing steps such as motion compensation, moving object detection and object tracking. In [1, 2], a quadratic motion model is used to compute car motion on flat road surfaces and outliers are detected using robust multiresolution techniques. Such a solution is elegant, but requires expensive computing power and does not account for vehicle vibration on uneven surfaces. The fundamental problem in moving objects recognition is to extract good features to describe the actions. In our work, we focus on motion features (trajectories). Motion trajectories are informative, compact, and spatiotemporally continuous, which makes them useful for action recognition [3]. In this paper, we propose a novel approach which does not follow the standard steps, and accordingly avoids the aforementioned difficulties. It is possible to reconstruct the shape of an object hidden from view. We have presented a real-time algorithm to detect multiple moving objects in urban traffic. Our technique does not require any knowledge about traffic. In the future investigations we will explore the possibility of estimating motion object to determining their the direction of motion. This could be better for locating moving objects and describe probably velocities of objects. We also present hardware implementation of proposed solution based on the processing system which can be well situated in the car system.

References

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