3D Trajectory Extraction from 2D Videos for Human Activity Analysis

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DESCRIPTION:
The present dissertation addresses the problem of extracting 3D trajectories of objects from 2D videos. The reason of this is the theory that these trajectories symbolise high-level interpretations of human activities. A 3D trajectory of an object means its sequential positions in the real world over time. To this end, a generic framework for detecting objects and extracting their trajectories is proposed. In simpler terms, it means obtaining the 3D coordinate of the objects detected on the image plane and then tracking them in the real world to extract their 3D trajectories. Lastly, this dissertation presents applications of trajectory analysis to understand human activities in crowded environments. In this context, each phase in the framework represents independent approaches dedicated to solving challenging tasks in computer vision and multimedia.