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ROBUST PERSON TRACKING WITH MULTIPLE NON-OVERLAPPING CAMERAS IN AN OUTDOOR ENVIRONMENT

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Abstract. The aim of our work is to combine multiple cameras for a robust tracking of persons in an outdoor environment. Although surveillance is a well established field, many algorithms apply various constraints like overlapping fields of view or precise calibration of the cameras to improve results. An application of these developed systems in a realistic outdoor environment is often difficult. Our aim is to be widely independent from the camera setup and the observed scene, in order to use existing cameras. Thereby our algorithm needs to be capable to work with both overlapping and non-overlapping fields of views. We propose an algorithm that allows flexible combination of different static cameras with varying properties. Another requirement of a practical application is that the algorithm is able to work online. Our system is able to process the data during runtime and to provide results immediately. In addition to seeking flexibility in the camera setup, we present a specific approach that combines state of the art algorithms in order to be robust to environment influences. We present results that indicate a good performance of our introduced algorithm in different scenarios. We show its robustness to different types of image artifacts. In addition we demonstrate that our algorithm is able to match persons between cameras in a non-overlapping scenario.

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