

Pedestrian Motion Analysis from Surveillance Videos using Proximity Maps and Support Vector Machines

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Abstract

Pedestrian motion analysis from surveillance videos is an important issue especially for security applications in urban areas. Considering the wide availability of video cameras in public places, the acquisition of video data is easily done, but the huge amount of information to be analyzed in real time requires fast and reliable video analytics solutions. A particular aspect of interest is to distinguish the normal pedestrian motion from the abnormal crowds motion. Inspired from a gait feature analysis, we propose a new solution for the description and analysis of some so-called extracted proximity maps from the video sequence, based on connected components analysis and geometric features. The resulting region-based geometrical descriptions of the proximity maps are classified with a support vector machine into normal pedestrian motion and abnormal or non-pedestrian motion. The very high accuracy (above 94%, even for linear SVMs) shows that this method is promising and recommends its further development and validation.

Biography

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