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論文内容要旨

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学位論文題目	A Study on Pedestrian Detection and Person Re-identification Based on Different Features (異なる特徴から人物検出と人物検索に関する研究)		
内容要旨			
<p>Many object detection algorithms assume that the pedestrian scale is fixed during detection, such as the DPM detector. However, detectors often give rise to different detection effects under the circumstance of different scales. If a detector is used to perform pedestrian detection in different scales, the accuracy of pedestrian detection could be improved. A multi-resolution DPM pedestrian detection algorithm is proposed in this paper. During the stage of model training, a resolution factor is added to a set of hidden variables of a latent SVM model. Then, in the stage of detection, a standard DPM model is used for the high resolution objects and a rigid template is adopted in case of the low resolution objects. In our experiments, we find that in case of low resolution objects the detection accuracy of a standard DPM model is lower than that of a rigid template.</p> <p>Person re-identification, which aims to track people across non-overlapping cameras, is a fundamental task in automated video processing. Moving people often appear differently when viewed from different non-overlapping cameras because of differences in illumination, pose and camera properties.</p> <p>The color histogram is a global feature of an object that can be used for identification. This histogram describes the distribution of all colors on the object. However, the use of color histograms has two disadvantages. First, colors change differently under different lighting and at different angles. Second, traditional color histograms lack spatial information. We used a perception-based color space to solve the illumination problem of traditional histograms. We also used the spatial pyramid matching (SPM) model to improve the image spatial information in color histograms.</p> <p>Finally, we used the Gaussian mixture model (GMM) to show features for person re-identification because the main color feature of GMM are more adaptable for scene changes and improve the stability of the retrieved results for different color spaces in various scenes. Through a series of experiments, we found the relationships of different features that impact person re-identification.</p>			