

Human Identification System Based on Statistical Gait Features

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A variety of automated gait-based human identification system is a biometric technology designed to identify people by analyzing how they walk. However, "intra-class variability" including carrying bag, clothing, and view angle variation has a significant influence on gait recognition performance. Speed Up Robust Features (SURF) is a scale and rotation -invariant interest point detector and descriptor but this algorithm might not sufficiently return a sufficient number of features. Therefore, this paper proposes statistical features extraction based on Speed Up Robust Features (SURF). The proposed system contains four parts are subject motion detection, human silhouette extraction, gait feature extraction and gait classification. A moving subject is first identified from the input video sequence. We extract human silhouettes using background subtraction method. For feature extraction, first and second order statistical features and gray level co-occurrence matrix statistical features calculated from the result of Speed Up Robust Features (SURF). Then, Meta-sample based sparse representation method (MSRC) method uses to classify the proposed features for human identification. The experimental result is evaluated on CASIA-B (multi-view gait database). According to our results, our approach is able to significantly improve gait recognition accuracy and decrease computation time.