Abstract

Lot of research in the field of human recognition is being carried out. Gait recognition is a relatively new approach which is gaining momentum in biometrics. We have demonstrated a simple approach as a solution to this problem. We have taken a feature which was proposed earlier i.e. the Silhouette Vector. This is the distance of boundary points from the centroid of the silhouette as it rotates 360 degrees. Additional to the silhouette vector, we divided the silhouette image into three equal parts vertically (Rectangular Features) and computed some statistical properties of these parts. These properties were also added to the silhouette vector and given to the PCA training system. Training was performed using silhouette vectors and
rectangular vectors for each subject. For testing the system, nearest neighbor method was used which is one of the simplest algorithms used for classification problems. The test subject is assigned to the class which is the minimum Euclidean distance from it. Inclusion of the additional features has improved the system performance greatly. Cumulative match score was used to analyze the system performance.

References

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Human Gait Recognition using Silhouette Vector and Principal Component Analysis

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**Index Terms**

Computer Science  
Pattern Recognition

**Keywords**

Gait Cycle  
Silhouette Vector  
Rectangular Vector  
Pca