Abstract

Shape based classification is one of the most challenging tasks in the field of computer vision. Shapes play a vital role in object recognition. The basic shapes in an image can occur in varying scale, position and orientation. And specially when detecting human, the task becomes more challenging owing to the largely varying size, shape, posture and clothing of human. So, in our work we detect human, based on the head-shoulder shape as it is the most unvarying part of human body. Here, firstly a new and a novel equation named as the "Omega Equation" that describes the shape of human head-shoulder is developed and based on this equation, a classifier is designed particularly for detecting human presence in a scene. The classifier detects human by analyzing some of the discriminative features of the values of the parameters obtained from the Omega equation. The proposed method has been tested on a variety of shape dataset taking into consideration the complexities of human head-shoulder shape. In all the experiments the proposed method demonstrated satisfactory results.
  - Xiang Bai Wenyu Liu Zhuowen Tu, "Integrating Contour and Skeleton for Shape Classification"; proceedings of 12th IEEE International conference on Computer Workshops (ICCV), 2009.


**Index Terms**

Computer Science

Pattern Recognition

**Keywords**

Omega Equation, Classifier, Human Detection, Omega Shape, Gaussian Mixture Model