Abstract

This paper deals with an efficient image segmentation algorithm for video images which is quite useful for video based traffic surveillance applications. It includes video segmentations, morphological operations and labeling. In the field of surveillance system, effective video object segmentation is a conveyance for video analysis and processing. It presents a new algorithm for video object segmentation i.e. unsupervised image segmentation based on Gaussian mixture model with modified EM procedure. It uses the spatial unsupervised GMM clustering technique in which the objective function is modified or the prior term is added in the Bayesian. Firstly we use EM algorithm to estimate the distribution of input image data with which the number of mixture components is automatically determined. Secondly the segmentation is arrived at by clustering each pixel into the appropriate component according to the Minimum Message Length (MML) criterion with the help of appropriate priors like Dirichlet-Normal-Wishart (DNW) prior. The proposed technique automatically decides the best number of clusters for images. The best number of clusters is obtained by using the cluster validity criterion with the help of Gaussian distribution.
References

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Index Terms

Computer Science  Image Processing

Keywords

Gmm  Em  Mml  Dnw  Multinomial Distribution  Bayesian  Fisher Information