

A Salient Based Bag of Visual Word model (SBBoVW): improvements toward difficult object recognition and object location in image retrieval

ABSTRACT

Object recognition and object location have always drawn much interest. Also, recently various computational models have been designed. One of the big issues in this domain is the lack of an appropriate model for extracting important part of the picture and estimating the object place in the same environments that caused low accuracy. To solve this problem, a new Salient Based Bag of Visual Word (SBBoVW) model for object recognition and object location estimation is presented. Contributions lied in the present study are two-fold. One is to introduce a new approach, which is a Salient Based Bag of Visual Word model (SBBoVW) to recognize difficult objects that have had low accuracy in previous methods. This method integrates SIFT features of the original and salient parts of pictures and fuses them together to generate better codebooks using bag of visual word method. The second contribution is to introduce a new algorithm for finding object place based on the salient map automatically. The performance evaluation on several data sets proves that the new approach outperforms other state-of-the-arts.

Keyword: Bag of Visual Words model (BoVW); Image retrieval; Object location; Object recognition; Saliency map; SIFT feature