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KCBA, A Method for Feature Extraction of Colonoscopy Images

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Abstract : In recent years, the use of artificial intelligence techniques, tools, and methods in processing medical images and health-related applications has been highlighted and a lot of research has been done in this regard. For example, colonoscopy and diagnosis of colon lesions are some cases in which the process of diagnosis of lesions can be improved by using image processing and artificial intelligence algorithms, which help doctors a lot. Due to the lack of accurate measurements and the variety of injuries in colonoscopy images, the process of diagnosing the type of lesions is a little difficult even for expert doctors. Therefore, by using different software and image processing, doctors can be helped to increase the accuracy of their observations and ultimately improve their diagnosis. Also, by using automatic methods, the process of diagnosing the type of disease can be improved. Therefore, in this paper, a deep learning framework called KCBA is proposed to classify colonoscopy lesions which are composed of several methods such as K-means clustering, a bag of features and deep auto-encoder. Finally, according to the experimental results, the proposed method's performance in classifying colonoscopy images is depicted considering the accuracy criterion.

Keywords : colorectal cancer, colonoscopy, region of interest, narrow band imaging, texture analysis, bag of feature
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