A New CBIR Approach for the Annotation of Medical Images

Abstract

In the medical field, images, and especially digital images, are produced in ever increasing quantities and used for diagnostics and therapy. Imaging has occupied a huge role in the management of patients, whether hospitalized or not. This gave birth of the annotation of medical image process. The annotation is intended to image analysis and solve the problem of semantic gap. Physicians and radiologists feel better while using annotation techniques for faster making decision and giving solutions to patients in a faster and more accurate way. However, medical images annotation still a hard task specially the process based Content-based image retrieval (CBIR). Recently, advances in Content Based Image Retrieval prompted researchers towards new approaches in information retrieval for image databases. In medical applications it already met some degree of success in constrained problems. For this reason, we focus in this paper on presenting to provide an efficient semi-automatic tool which is used for efficient medical image retrieval from a huge content of medical image database and which is used for further medical diagnosis purposes for the new image annotation, because, efficient content-based image Retrieval in the medical domain is still a challenging problem. The goal of this work is to propose an approach able to compute similarity between a new
medical image and old stored images. The annotator has to choose then one of the similar images and annotations related to the selected one are assigned to the new one. The idea is to apply an edge detector algorithm (Sobel algorithm) to the image and extract features from the filtered image by a color histogram. The edge to the image become likes Finger print to a human in our work. It is a search based edge. Edge representation of an image drastically reduces the amount of data to be processed, yet it retains important information about the shapes of objects in the scene. Edges in images constitute an important feature to represent their content and extraction features from filtered image improve searching of similar images, and keeping in the same time the properties of each image. The similarity measurement between images is developed based the Euclidean distance. The method can answer queries by example. The efficiency and performance of the presented method has been evaluated using the precision and the recall. The results of our experiments show high percentage of success, which is satisfactory.

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