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A Content-Based Fuzzy Image Database Based on The Fuzzy ARTMAP Architecture

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Abstract: A major design issue in content-based image retrieval system is the selection of the feature set. This study attacks the problem of finding a discriminative feature for each class, which is optimal in some sense. Fuzzy ARTMAP architecture is used to find this discriminative feature set. For this purpose, initially, a large variety of features are extracted from the regions of the pre-segmented images. Then, the feature set of each object class is learned using the Fuzzy Art Map Architecture, by identifying the weights of each feature for each object class. In the querying phase, trained set of feature weights of fuzzy ARTMAP's are used to find the label of each object class. This task is achieved by combining the regions in the images and computing the maximum membership value for the compound regions, which correspond to a possible object class. The query object is matched to each segment group in a fuzzy database using the membership values of segment groups.

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