FUZZY RELEVANCE FEEDBACK IN CONTENT−BASED IMAGE RETRIEVAL SYSTEMS USING RADIAL BASIS FUNCTION NETWORK (FriAmOR7)

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**Abstract**: This paper presents a new framework called fuzzy relevance feedback in interactive content−based image retrieval (CBIR) systems based on soft−decision. An efficient learning approach is proposed using a fuzzy radial basis function network (FRBFN). Conventional binary labeling schemes require a crisp decision to be made on the relevance of the retrieved images. However, user interpretation varies with respect to different information needs and perceptual subjectivity. In addition, users tend to learn from the retrieval results to further refine their information priority. Therefore, fuzzy relevance feedback is introduced in this paper to integrate the users’ fuzzy interpretation of visual content into the notion of relevance feedback. Based on the users’ feedbacks, an FRBFN is constructed, and the underlying parameters and network structure are optimized using a gradient−descent training strategy. Experimental results using a database of 10,000 images demonstrate the effectiveness of the proposed method.