Invariant Generalised Ridgelet-Fourier for shape-based image retrieval

ABSTRACT

A new shape descriptor called the Invariant Generalised Ridgelet-Fourier is defined for the application of Content-based Image Retrieval (CBIR). The proposed spectral-based method is invariant to rotation, scaling, and translation (RST) as well as able to handle images of arbitrary size. The implementation of Ridgelet transform on the ellipse containing the shape and the normalisation of the Radon transform is introduced. The 1D Wavelet transform is then applied to the Radon slices. In order to extract the rotation invariant feature, Fourier transform is implemented in the Ridgelet domain. The performance of the proposed method is accessed on a standard MPEG-7 CE-1 B dataset in terms of few objective evaluation criteria. From the experiments, it is shown that the proposed method provides promising results compared to several previous methods.

Keyword: CBIR; Invariant to RST; Ridgelet transform; Shape descriptor