

Generalized Ridgelet-Fourier for $M \times N$ images: determining the normalization criteria

ABSTRACT

Ridgelet transform (RT) has gained its popularity due to its capability in dealing with line singularities effectively. Many of the existing RT however is only applied to images of size $M \times M$ or the $M \times N$ images will need to be pre-segmented into $M \times M$ sub-images prior to processing. The research presented in this article is aimed at the development of a generalized RT for content-based image retrieval so that it can be applied easily to any images of various sizes. This article focuses on comparing and determining the normalization criteria for Radon transform, which will aid in achieving the aim. The Radon transform normalization criteria sets are compared and evaluated on an image database consisting of 216 images, where the precision and recall and Averaged Normalized Modified Retrieval Rank (ANMRR) are measured.

Keyword: ANMRR; Content-based image retrieval; Precision and recall; Ridgelet transform