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Content Based Face Sketch Images Retrieval in WHT, DCT, and DWT Transform Domain

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Abstract : Content based face sketch retrieval can be used to find images of criminals from their sketches for 'Crime Prevention'. This paper investigates the problem of CBIR of face sketch images in transform domain. Face sketch images that are similar to the query image are retrieved from the face sketch database. Features of the face sketch image are extracted in the spectrum domain of a selected transforms. These transforms are Discrete Cosine Transform (DCT), Discrete Wavelet Transform (DWT), and Walsh Hadamard Transform (WHT). For the performance analyses of features selection methods three face images databases are used. These are 'Sheffield face database', 'Olivetti Research Laboratory (ORL) face database', and 'Indian face database'. The City block distance measure is used to evaluate the performance of the retrieval process. The investigation concludes that, the retrieval rate is database dependent. But in general, the DCT is the best. On the other hand, the WHT is the best with respect to the speed of retrieving images.

Keywords : Content Based Image Retrieval (CBIR), face sketch image retrieval, features selection for CBIR, image retrieval in transform domain
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