This article proposes a new spatial domain measure of local energy to extract the image features like edges. We define the measure as the local form factor (FF). It is the ratio of RMS to average of the pixel values in a region. Inverse square of the local FF around a center pixel is defined as an index of edge strength at that pixel. The proposed method could be applied
directly on any image without smoothing for noise removal. It only needs an estimate of the Signal-to-Noise ratio (SNR) of the images to compensate the effect of noise. The compensated feature image is passed through non minimum suppression and universal thresholding processes to produce the final edge map. The performance of the method is assessed using Baddeley Error Metric (BEM) and compared with those resulted from the popular Canny edge detector with different scales. The experimental results are encouraging the application of the method to extract edges and hence can be used as a potential candidate for general feature extraction.

Reference

A New Method for Edge Extraction in Images using Local Form Factors


Index Terms

Computer Science

Image Analysis
Key words

Baddeley Error Metric

Canny edge detector

Edge detection

Local form factor

Non minimum suppression