An Efficient Gradient based Algorithm for Improving Performance of Image Edge Detection

Abstract

Quality and execution time are two important factors for evaluation of edge detection algorithms. In these algorithms, there is a trade-off between quality and execution time. Some algorithms only concentrate on quality and some of them are fast and low quality. Efficient methods try to achieve high quality in a low time. This research concentrates on improvement of gradient based edge detection that is fast method and appropriate for real-time processing. The proposed algorithm reduces execution time by removing many pixels from computations. It calculates gradient and angle class of remaining pixels in a very efficient way so that it reinforces quality and locality of edges. The results of this algorithm indicated improvement of performance in comparison to Canny and LOG algorithms.

References


Index Terms

Computer Science  Image Processing

Keywords

Edge detection algorithm  Gradient of image  Angle Class of pixel  Non-Maximum Suppression  Post reduction of noise

Edge detector evaluation

Locality of edges

Quality of edges.