

Comparison of Two Line Detection Techniques

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Abstract

A necessary step in many digital image processing and computer vision techniques is determining the characteristics of lines in images. The majority of existing approaches are extensions of the Hough Transform. In this paper a comparison between two algorithms for line detection is presented. The first algorithm is based on a general approach that begins with detecting the edges of the input image, followed by edge chaining and obtaining the lines through the line fitting stage. After computing the pixel gradients we split them into bins with respect to the gradient directions and then labels are assigned for each separate bin. Using a connected-components algorithm the pixels with the same label become part of a line support region from where the line will be extracted. The second algorithm is a standard Hough Transform that uses an accumulator to vote for edge points. The cells with a high number of votes are considered peaks and the coordinates of the cell in the transform space give a unique line. Lines are formed by uniting smaller line segments if the distance between them is small enough. The methods are tested on several images with a varying degree of complexity.

Biography

I am currently a student at the Multimedia Technologies Masters at theTUC-N. I graduated the Faculty of Electronics, Telecommunications and Information Technology in 2011.

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