

CHANGE DETECTION WITH ENHANCED ANGULAR RESOLUTION

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Abstract

Detection of EDGE in an image is the important for pattern recognition of an image. Edge constitutes the high frequency in the image spectrum. An Edge Detection is the computation of the local derivative. Edge is a set of connected pixels that lie on the boundary between two regions.[4] The derivatives of a digital function is defined in terms of differences. Digital function in present case is an image. The first or second derivative of the digital function is zero in areas of constant gray levels. Nonzero for onset of a gray level step. Since we are dealing with digital quantities whose digital values are finite, the maximum possible gray level changes are also finite. Also the shortest distance over which that change can occur is between adjacent pixels[3]. The edge is a 'local' concept. There is difference between edge and boundary. The boundary of a finite region forms a closed path and is a global concept. In general, edge in binary image can be defined as a line of black pixels with at least one white nearest neighbor. For edge detection matrix is operated through the image (convoying the image). Calculation of the response to the mask in eight directions of compass gives edge strength along one of the eight directions. Compass gradient with higher angular resolution is designed by increasing the size of mask. Such operator searches for edge strength in more directions. This methodology gives more choice for selection of better edge.

Keywords: Edge Detection, Sobel Operator, Angular Resolution, Image Processing