Abstract

The challenge of computational complexity reduction of Circular Hough Transforms (CHT) in detecting circular shapes in images is addressed. A new adaptive algorithm is introduced which minimizes the average accumulation space used in the voting process of CHT with the help of a variable size accumulation array. An improved method is presented which computes Signature Curve of gradient information of the image to find the radius and center of candidate circles, thus eliminating the influence of variable background intensity, especially in the noisy images. Experimental evaluations show that the proposed algorithm can significantly improve the quality of the results and considerably reduce the computational complexity and memory space.

References


Index Terms

Computer Science Image Processing

Keywords

Hough Transform, Circle Detection, Gradient, Signature Curve