Numerical Assessment of Anisotropic Diffusion Equation for Image Blurring Using SOR Iteration

ABSTRACT

Blurring the image while preserving the important features such as edges is a crucial study in computer vision. This paper presents the results of applying three iterative methods which are Jacobi, Gauss Seidel and Successive Overrelaxation (SOR) to solve anisotropic diffusion equation for image blurring, where the output image of Jacobi is used as a control image. The number of iterations and computational time required to solve the anisotropic diffusion equation are used to measure the performance of the considered iterative methods. The findings show that SOR method is more efficient to smooth the inner region of an image compared to Jacobi and Gauss-Seidel methods in which the SOR required the least number of iterations and computational time.