

## **Numerical Solutions for Poisson Image Blending Problem using 4-EDGSOR Iteration**

### **ABSTRACT**

Poisson image blending is an operation in image processing to generate a new image by using Poisson partial differential equation. In this paper, 4-EDGSOR iteration is used to solve the Poisson image blending problem and its efficiency in solving the proposed problem is illustrated. The approximation Poisson equation is formed by applying a finite difference method. Then, the rotated Laplacian operator which is constructed by a rotated finite difference scheme is used in this paper. Then a linear system is formed and solved using the 4-EDGSOR iterative method. The performance of the 4-EDGSOR iterative method in solving the proposed problem is compared to the SOR and 4-EGSOR iterative methods. The results obtained from numerical solutions showed that the 4-EDGSOR iterative method required lesser time and number of iterations to blend an image. From quality point of view, all images obtained the same natural look.