Efficient Heuristic Algorithm to Speed Up Graphcut in Gpu for Image Stitching

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Abstract : GraphCut algorithm has been widely utilized to solve various types of computer vision problems. Its expensive computational cost encouraged many researchers to improve the speed of the algorithm. Recent works proposed schemes that work on parallel computing platforms such as CUDA. However, the problem of low convergence speed prevents the usage of GraphCut for real time applications. In this paper, we propose global suppression heuristic to boost the conver-gence process of the algorithm. A parallel implementation of GraphCut algorithm on CUDA designed for the image stitching problem is introduced. Our method achieves up to 3× time boost on the graph of size 80 × 480 compared to the best sequential GraphCut algorithm while achieving satisfactory stitched images, suitable for panorama applications. Our source code will be soon available for further research.