

A novel fully parallel skeletonization algorithm

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Abstract: A Skeleton that is extracted by a skeletonization algorithm from a binary image is useful for object description, matching, recognition and compression. The parallel thinning algorithm, one of the skeletonization algorithms is well known to have computational efficiency. The main contribution of this paper is that we proposed a novel fully parallel thinning algorithm based on a comprehensive investigation of the well-known Zhang-Suen (ZS)-series algorithms and the one-pass thinning algorithm (OPTA)-series algorithms, which not only has good performance in terms of (8,4) connectivity preservation and single-pixel thickness, but also has the following qualities: it is more robust to the boundary noise than the OPTA-series algorithms and it is

faster than the ZS-series algorithms in terms of thinning speed, as confirmed by the experiments presented in this paper.

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