Abstract

Thinning is a well-known iterative layer-by-layer reduction operator to obtain skeletons of the binary objects. These skeletons are used as shape descriptors in many image processing, image analysis and pattern recognition applications. Thus obtaining topology preserved, centrally aligned and connected single pixel thin skeleton, without spurs and excessive erosions, and noise tolerant at pre-processing stage is essential to the success of later processing stages. The end-point based algorithms preserve original shape but results in extra spurs due to the presence of unwanted endpoints. The isthmus-based algorithms produce less spurs but causes excessive erosions. Hence in this paper, we proposed an efficient fully parallel thinning algorithm for 2D binary images. We proposed a general methodology for removing noise prior to thinning. A comparison with recent algorithms by the proposed method showed the better skeleton quality, efficiency and robustness.
Robust and Efficient Fully Parallel 2D Thinning Algorithm

References


Index Terms

Computer Science

Algorithms
Robust and Efficient Fully Parallel 2D Thinning Algorithm

Keywords
- Fully parallel
- 2D thinning
- Noise tolerant
- Topology preservation
- Geometry preservation
- Weight values