

Multiscale Connected Component Labelling and Applications to Scientific Microscopy Image Processing

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Abstract : In this paper, a new method is proposed to extending the method of connected component labeling from processing binary images to multi-scale modeling of images. By using the adaptive threshold of multi-scale attributes, this approach minimizes the possibility of missing those important components with weak intensities. In addition, the computational cost of this approach remains similar to that of the typical approach of component labeling. Then, this methodology is applied to grain boundary detection and Drosophila Brain-bow neuron segmentation. These demonstrate the feasibility of the proposed approach in the analysis of challenging microscopy images for scientific discovery.

Keywords : microscopic image processing, scientific data mining, multi-scale modeling, data mining

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