

博士论坛

改进Split-Merge分割用于蝗虫图像

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摘要 为了更好地分割蝗虫图像, 对传统Split-Merge算法做出改进: 用PCNN来进行分裂, 采用一种简化的Mumford-Shah模型进行合并。该方法的优点是: 分裂阶段不仅无效分割数目减少, 而且无方块效应, 对边缘定位准确; 合并阶段能够理想地将分裂后的区域合并为感兴趣的前景与不感兴趣的背景, 误合并与欠合并大幅减小。实验对成虫与幼虫图像均进行分割。综合比较, 该算法性能较优。

关键词 [图像分割](#) [分裂合并法](#) [脉冲耦合神经网络](#)

分类号

Improved Split-Merge segmentation used for locust image

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Abstract

In order to segment locust images more effectively, an improved Split-Merge algorithm is proposed. It gives split on images via PCNN, and meantime merges areas via a simplified Mumford-Shah model. Its advantages are as follows: At split stage, it can reduce the number of invalid split, be immune of block-effect, and locate edges more accurately; at merge stage, it can merge areas into interesting foregrounds and uninteresting backgrounds perfectly, and reduce the chance of incorrect and insufficient merge. Experiments with imago and larva locust images is segmented. It can conclude that this proposed method performs best after comprehensive comparison.

Key words [image segmentation](#) [split-merge method](#) [pulse coupled neural network](#)

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