改进狼群优化算法的 Otsu 图像分割法

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摘　要：为减少算法的运行时间，对狼群算法和二维 Otsu 算法进行分析研究，提出改进狼群优化算法的 Otsu 图像分割法，将 PSO 算法中求解当前局部最优的思想引入到狼群算法的游走、召唤行为中，使狼群间实现信息交互，提高搜索最佳阈值的准确度；采用自适应化围攻行为，加快算法寻优速度；利用混沌法对得到的次优解进行优化，避免陷入局部极值.仿真结果表明，该算法既降低了分割时间，又提高了分割精度.

关键词：二维 Otsu；狼群优化；信息交互；自适应化；混沌法；图像分割

Otsu Image Segmentation Method Based On Improved Wolf Pack Optimization Algorithm

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Abstract：In order to reduce the running time of the algorithm,Wolf pack algorithm and 2-D Otsu algorithm were studied,an Otsu image segmentation method based on improved Wolf pack optimization algorithm was proposed.In order to promote the exchange of information between the wolves,improve the accuracy of searching the best threshold,solving the current local optimal of PSO algorithm and scouting behavior,summoning behavior of Wolf Pack Algorithm were combined.An adaptive beleaguering strategy was introduced into beleaguered behavior,improve accuracy,the sub-optimal solution was optimized by chaos method to avoid local extreme.The results show that the algorithm not only reduces the segmentation time, but also improves the segmentation accuracy.

Key words：2-D Otsu; wolf pack optimization; interactive information; adaptive; chaos method; image segmentation

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