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三维飞机自动识别的一种有效方法

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EFFECTIVE METHOD FOR 3 D AIRCRAFT TARGET AUTOMATIC RECOGNITION

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摘要

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摘要 提出一种新的飞机自动识别算法。采用矩不变量和傅立叶描述子相结合的表达方法简单而有效地描述飞机的特征; 采用了分布存储的BP神经网络来减少存储量和加速搜索识别过程, 并对BP网络的收敛方法提出了若干措施加速其收敛过程。通过对9架不同飞机的大量实验证实, 本系统性能优越, 其识别准确率在99%以上, 并且识别速度很快, 一架飞机的整个识别过程在不到1s的时间内就可完成。

关键词: 矩不变量 傅立叶描述子 BP神经网络

Abstract: A new approach is proposed to recognize aircraft automatically. To describe the characters of aircraft simply and efficiently, moment invariants and Fourier descriptors are combined. A neural network with distributive storage ability is used. At the same time, several methods are taken to accelerate its convergent process and experiments of nine different aircraft have proved that this recognition system performs well; it has an accuracy over 99% and high recognition speed. The whole recognition process can be completed within 1 second.

Keywords: moment invariant Fourier descriptor BP neural networks

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