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单目摄像机标定方法的研究

李小峰, 李 峰

江苏大学 计算机学院，江苏 镇江 212013

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摘要 摄像机标定是计算机视觉领域的一个研究热点，为了解决单目摄像机标定中的精度不高、模型复杂、鲁棒性差等问题，依据神经网络、遗传算法及摄像机标定的特点，提出了基于遗传算法和BP神经网络相结合的单目摄像机标定方法。该方法充分利用遗传算法的全局优化和神经网络的局部收敛的特点，一方面避免了建立复杂的摄像机成像模型，另一方面增强了摄像机标定的精度和鲁棒性。实验表明该方法有效。

关键词 遗传算法 神经网络 摄像机标定 单目摄像机

分类号

Camera calibration for monocular vision

LI Xiao-feng,LI Feng

College of Computer，Jiangsu University，Zhenjiang，Jiangsu 212013，China

Abstract

The camera calibration is one of most important research fields in computer vision.In order to solve the questions of imprecision，structing complex model，non-robustness in the camera calibration.In the paper，a algorithm of camera calibration based on BP neural network and genetic algorithm is proposed according as characteristic of neural network，genetic algorithm and camera calibration.The algorithm makes full use of global numerical optimization characteristic in genetic algorithm and easily converging to local minimum in neural network.On the one hand，it does not need to build the complex camera imaging model，on the other hand，it is improving the precision and robustness in the camera calibration.The experiment results show the method is effective.

Key words genetic algorithm neural network camera calibration monocular vision

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通讯作者 李小峰 lixiaofeng427@126.com