

研发、设计、测试

## 基于自适应神经网络的双摄像机标定

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**摘要** 摄像机标定是计算机视觉中非常重要的一环, 传统标定方法需要求解内外参数, 非常繁琐。通过建立自适应神经网络直接学习图像坐标与空间坐标间的关系。该方法对Harris角点提取结果进行增加约束的改进, 从而提高网络训练样本精度, 通过程序实现隐层神经元的自适应选取, 并综合运用正则化、提前终止策略, 使网络的泛化能力得到极大的改善。最后通过与经典标定方法进行对比的实验证明基于自适应神经网络具有很好的双摄像机标定精度。

**关键词** [双摄像机标定](#) [自适应](#) [多层前馈网络](#) [Harris角点](#)

分类号

## Self-adaptive neural network for binocular camera calibration

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### Abstract

Camera calibration is an important step in computer vision, the traditional calibration methods need to acquire the intrinsic and extrinsic parameters and the process is quite complicated, so self-adaptive neural network is used to learn the relationship between the image coordinates and the space coordinates. The generalization ability is improved a lot by the following methods: modify Harris corner extraction algorithm to improve the training data accuracy, choose the number of the middle layer cells adaptively through program, and combine normalization and stopped training strategies. At last, comparing with the traditional calibration method, the test result shows that this method is available and has higher precision for binocular camera calibration.

**Key words** [binocular camera calibration](#) [self-adaptive](#) [Back Propagation \(BP\) network](#) [harris corner](#)

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