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双目立体视觉中的摄像机标定技术研究

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摘要 以张氏标定方法为基础，提出以圆心作为标定点的2D平面模板标定方法，通过与基于方格角点的标定方法以及基于方格形心的标定方法进行比较，证明了该方法的有效性。又运用BP神经网络来模拟立体视觉系统三维空间与二维图像平面之间的物、像对应关系，建立了双目立体视觉系统的摄像机隐式标定模型，避免了因数学模型的不完善而带来的系统误差。实验证明该方法能够获得较高的标定精度。

关键词 双目立体视觉 摄像机标定 BP神经网络

分类号

Research on camera calibration in binocular stereo vision

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Abstract

Based on Zhang’s method，the calibration method based on the centers of circles on a 2D plane is proposed.By contrasting this method with another two methods，based on corners of squares and based on centers of squares，the validity of this method presented in this paper is proved.In addition to，the implicit camera system model is made with BP neural network simulating the relationship between the 3D objects and its images in the stereo system，which avoiding the system errors caused by unperfected mathematic relation.Experiments show that the high calibration precision can be got by this way.

Key words binocular stereo vision camera calibration BP neural network

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