

移动机器人环境视觉小波稀疏压缩传感和识别

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摘要：

视觉环境认知，尤其处理实时性，是自主移动机器人研究的重要内容之一，而减少视觉信息数据处理量是提高视觉感知处理性能的重要举措之一。本文基于小波稀疏和灰度共生矩阵，对两种典型环境图像的压缩传感信息进行了纹理特征提取与直接识别研究。结果表明：进行小波稀疏的两种压缩传感环境图像信息保留了原始图像特征，能够直接进行环境特征认知，在一定程度上说明了压缩传感信息直接特征识别的可行性。

关键词：压缩传感；环境认知；小波稀疏；灰度共生矩阵

Wavelet Sparsity Based Compressive Sensing and Direct Recognition for Mobile Robot Environmental Vision

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Abstract:

Vision based environment perception, especially real-time processing performances, is a key research issue for autonomous mobile robot. This article aims to enhance the visual system speed by reducing the processing image data which is based on compressed sampling and direct feature recognition. Experiments of two typical environment images perception are carried out to verify its feasibility. The result shows it can recognize the two different environment images from the compressed information which is based on the orthogonal wavelet sparsity and gray level co-occurrence matrix.

Keywords: compressive sensing; environment perception; wavelet sparsity; gray level co-occurrence matrix

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