

基于颜色分量运算与色域压缩的杂草实时检测方法

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关键词: 杂草识别 图像处理 色域位屏蔽压缩 实时检测

摘要: 提出了一种基于RGB分量运算和色域位屏蔽压缩的杂草实时检测方法。对杂草和作物的大量实验显示:颜色分量运算可增强目标的显示特性,而对色域的屏蔽压缩可在保证实时性的同时减弱图像噪声污染,减小干扰引起的纹理分割误差。该方法的处理时间几乎不受目标复杂度影响,可在30 ms内有效分割出320×240分辨率图像中有颜色差异的不同杂草或农作物,对颜色分布波动具有较强的鲁棒性。颜色分量运算的线性组合系数可通过有监督的学习自动确定。A real-time method to extract weed or crop populations was presented, based on RGB color components operation combined with bit-masked color reduction. Experimental results on different weed or crop populations show that color components operation can enhance the visual pattern of objects to human, and color bit-masked operation can reduce noises in image, so that the error on segmentation can be reduced. Processing time of this method costs little, no matter how complex of related scenario, with color objects be extracted within 30 ms for images of 320×240 resolution, and it's robust to variation of color or illumination on local weed or crop populations. The coefficient and operator for color components combination is determined by a supervised learning mechanism.

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