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用计算机视觉进行黄花梨果梗识别的新方法
Classifing Stem of Huanghua Pear With Computer Vision

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中文关键词：梨,果梗,图象,计算机视觉

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作者	单位
应义斌	浙江农业大学
景寒松	浙江农业大学
马俊福	浙江农业大学

中文摘要：

梨的果梗是否存在是分级的重要特征之一。通过计算机视觉系统摄取黄花梨图象，应用图象处理技术完成图象与背景的分割。针对使用细化及收缩膨胀算法识别果梗速度较慢，提出了一种快速算法。该法利用梨果梗直径小，选择不同大小的模板，判别图象中是否存在果梗，同时得到果梗头、底部与梨相交点的坐标，依据切线斜率信息，对果梗的完好性进行判断。试验结果表明，该算法可以１００％判断果梗是否存在，判断果梗是否完好的正确率达到９３％，判别速度提高４～６倍。而且该算法具有一定的鲁棒性，对旋转、移位不敏感。

英文摘要：

The condition of stem is an important character to classify the pear. The pictures of Huanghua pears were analyzed with a computer vision system. The median filtering method was used to smooth the picture, and the local threshold algorithm was applied to segment the pear from the background. As the thinning and erosion dilation algorithm in judging presence of the stem is too slow, a new fast algorithm was put forward. Compared with other part of the pear, the stem is obviously thin and long, with the help of various sized templates,to judge the presence of stem was easily, meanwhile the stem head and the intersection point of stem bottom and pear body were labeled. Furthermore, after the coordinates of the stem head and bottom and the ratio of slope were calculated, the broken stem could be distinguished from the good stem. As the statistical result of 53 pictures of pears, the method accuracy to judge the stem presence is 100 %, and whether the stem is good reaches 93 %, and the classification rate was increased about 4～6 times. The algorithm is robustness and can be made invariant to translation and rotation.

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