山竹的计算机视觉分级方法 Mangosteen Grading Based on Computer Vision

张俊雄 荀一 李伟

中国农业大学

关键词： 山竹 分级 计算机视觉

摘 要： 提出了一种基于计算机视觉技术的山竹大小和颜色分级方法。针对以蓝色滚子为背景的山竹图像，在RGB色彩空间使用双阈值对图像进行初步分割；然后通过形态学运算、轮廓跟踪、区域填充提取出整个山竹目标；最后由颜色因子2G-R-B和G识别出果柄、果蒂和果皮。由果柄、果蒂区域形心和果皮区域形心位置判断水果的姿态，提取水果的最大横径作为大小分级指标；在HIS颜色空间以果皮区域的饱和度S和色调H的差值作为颜色分级指标。选取200个山竹进行分级试验，试验结果表明：果径检测精度为±1.8mm，颜色分级串级果最大比例为10.2%。 A grading method of mangosteen at size and color was proposed based on computer vision. Taking the blue rollers as background, the mangosteen images were pre-segmented by double thresholds in RGB color space. Through morphological operation, contour trace and region fill, the whole mangosteen target was obtained. Lastly, the peduncle, pedicel and pericarp were identified by 2G-R-B and G factors. According to the centroid of peduncle and pedicel and the centroid of pericarp, the fruit posture was evaluated, and the diameter was extracted as the size grading criteria. Meanwhile, the difference of saturation and hue of pericarp area in HIS color space was the color grading criteria. A grading experiment was carried out for 200 mangosteens. The results indicated that the accuracy of diameter measurement is ±1.8mm, and the maximal scale of neighbor grade mixed by color is 10.2%.

查看全文（请使用Adobe Acrobat 6.0版本浏览） 返回首页 引用本文