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ABSTRACT

Background

Optical techniques, including computer vision, spectral imaging, near-infrared technology and other emerging imaging and spectroscopy techniques, have been rapidly developing and widely applied in fruit and vegetable grading systems for nondestructive quality inspecting and grading over the past decades. However, automatic detection of quality and grading is still difficult due to some still existing challenges, which are the key of blocking their commercialization in robotic fruit and vegetable grading systems. The challenges include the following aspects: the influence of physical and biological variability, whole surface detection, discrimination between defects and stems/calyxes, unobvious defect detection,