

#### Abstract:

One of the difficult problems in automated machine vision apple sorting is the distinction between true defects and the stem-end/calyx. To solve this problem, a dual imaging approach using near infrared (NIR) and mid-infrared (MIR) was developed for combined sensing. Based on this method, the MIR is sensitive to the stem-end/calyx, whereas the NIR is sensitive to both stem-end/calyx and defects. Through image processing of combined images, the distinction is achieved. Experiments show the robustness of the method for on-line defect sorting of apples.