Review of: "Comparing YOLOv8 and Mask RCNN for object segmentation in complex orchard environments"

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Potential competing interests: No potential competing interests to declare.

The research provides a thorough and perceptive investigation of instance segmentation in orchard photos utilizing YOLOv8 and Mask R-CNN models. The results and discussion section thoroughly examines the process of segmenting immature green apples as a single-class object and segmenting dormant apple trees as a multi-class object. The visual depictions, concrete instances, and numerical measurements effectively communicate the higher accuracy, completeness, and overall performance of YOLOv8 compared to Mask R-CNN across different situations. The paper adeptly connects the observed variations in performance to the architectural intricacies of the two models, providing valuable perspectives on their advantages and constraints. Incorporating computing speed factors enhances the practical significance, underscoring the appropriateness of YOLOv8 for time-critical agricultural operations. The work makes a substantial contribution to the field of precision agriculture by offering academics and practitioners excellent recommendations on how to choose and use deep learning models for orchard instance segmentation. However few points can be considered :

1. Determine if the datasets were evenly distributed in terms of lighting conditions, as this may affect the ability of the models to be applied to different environmental situations.
2. Provide a concise rationale for the selected learning rate, batch size, and dropout rate during the training phase. This will improve the clarity and openness of the judgments made during the model training process.
3. Please provide a brief summary or explanation of how different light conditions affect the model's performance. This information could be pretty beneficial for readers who are interested in understanding the resilience of the models in various environmental contexts.
4. When discussing the segmentation of trunks and branches, please explicitly state any particular issues or patterns that were found in circumstances when Mask R-CNN has shown superior performance compared to YOLOv8. This will provide a more equitable and comprehensive examination of the models' advantages.
5. In results and discussion, it is recommended to include a concise analysis of possible approaches to address the identified constraints of Mask R-CNN. This will offer a future-oriented viewpoint for researchers aiming to enhance the effectiveness of two-stage models.
6. In findings and analysis the computational speed disparities between YOLOv8 and Mask R-CNN have significant practical ramifications. This will emphasize the importance of processing speed in the context of practical applications.
7. Elaborate on the broader ramifications of the study's findings for the domain of precision agriculture. Examine possible directions for future investigation or practical uses derived from the knowledge acquired by comparing YOLOv8 and

Mask R-CNN in orchard instance segmentation.