Datasets: Tracking-by-detection framework for simultaneous tree-scale

pomegranate yield and fruit loss estimation from UAV

Dataset	Description	Link
Orchard dataset	203 high-resolution RGB images of 'Wonderful' pomegranate trees collected in a commercial orchard in Kibbutz Tzora, Israel. Images were manually annotated and used as the base dataset prior to augmentation.	Orchard dataset
Yield dataset	Subset of the orchard dataset containing annotated healthy pomegranate fruits representing yield instances, used for training and evaluation of the yield detection models.	Yield dataset
Loss dataset	Subset of the orchard dataset containing annotated defective pomegranate fruits representing cracking-related loss.	Loss dataset
Supplementary Loss images	Additional UAV-derived images containing orchard elements such as ground surfaces and tree boundary markers, used to improve robustness of loss detection and reduce false positives.	Supplementary loss dataset
Defective external pomegranate dataset	Defective Pomegranate Dataset - 184 close-up images of defective pomegranates obtained from the Roboflow platform	Defective external pomegranate dataset
Augmented defective external pomegranate dataset	Augmented version of the external defective pomegranate dataset, generated using geometric and photometric transformations to increase sample diversity and improve model generalization.	Defective external pomegranate dataset-augmented
background images	RGB images of orchard ground surfaces and surrounding environment without visible pomegranate fruits, used as background scenes for generating synthetic defective orchard images through object segmentation and compositing.	Orchard background images
Synthetic defective orchard pomegranate dataset	Synthetic images generated by segmenting defective pomegranate fruits using the Segment Anything Model (SAM) and embedding them onto orchard-like background images, with automatically generated YOLO-format labels.	Synthetic defective orchard pomegranate dataset
Tiled pomegranate loss orchard dataset	Tiled version of the orchard loss dataset, generated by dividing each image into a 2×2 grid with 10% overlap to increase the relative size of small defective fruits and improve detection performance.	Tiled pomegranate loss orchard dataset

	Corresponding annotations were recalculated for each tile.	
Mishmar-Hanegev video dataset	UAV-acquired RGB video clips collected in a commercial pomegranate orchard in Mishmar-Hanegev, Israel, used for evaluation of yield and loss estimation at the individual-tree level.	Mishmar-Hanegev video dataset
Tsor'a video dataset	UAV-acquired RGB video clips collected in a commercial pomegranate orchard in Tsor'a, Israel, used for evaluation of the proposed tracking-based yield and loss estimation framework.	Tsor'a video dataset