Filed data (Original data set)
resolution size: 4032 × 3024

Image preprocessing(The image resolution is compressed to a quarter of the original image to avoid out of memory problems during model training, as well as to facilitate the transfer of the dataset.)

resolution size: 1008 × 756

Data segmentation (The images, along with their corresponding labels, were randomly divided into training, validation, and test sets in an 8:1:1 ratio. The resulting training set comprised 3044 images, with 381 images allocated to both the validation and test sets, respectively.)

resolution size: 1008 × 756

Model training process(All images are resized to this size by yolov8 before being input to the model. This size is the official yolov8 recommended size to ensure optimal model accuracy and computational complexity.)

resolution size: 640 × 640

Two public melon datasets. Downloaded from the web are used to validate the model generalization capability.

resolution size: 416 × 416
resolution size: 960 × 1280

Generalization set   (The generalised dataset is not involved in the model training process and does not need to be compressed because of its small resolution, so its resolution remains constant throughout the experimental process.)

resolution size: 416 × 416
resolution size: 960 × 1280