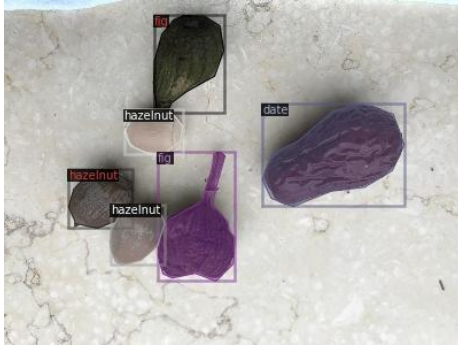# Lab 2

Data Visualization

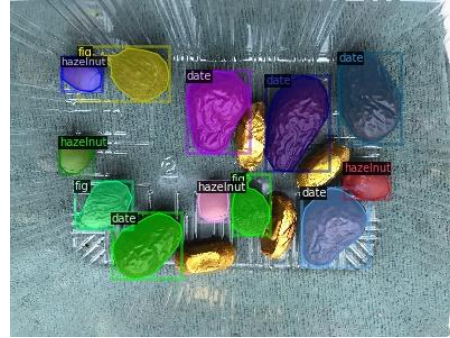**Figure 1** An example of a sample from training data.

Figure 2 Another example for a sample from the training data.

Training Curves

From figures below, after 300 iterations **COCOInit** model has a total loss of 0.2, on the other hand **INinit** model converges to 0.8, so COCOInit outperforms INinit.
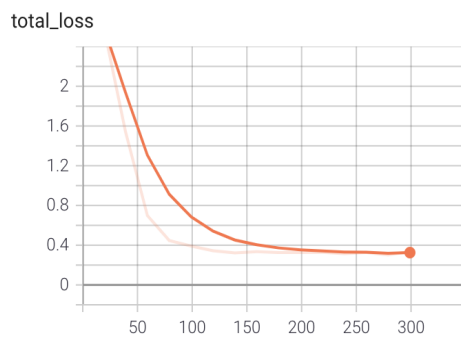

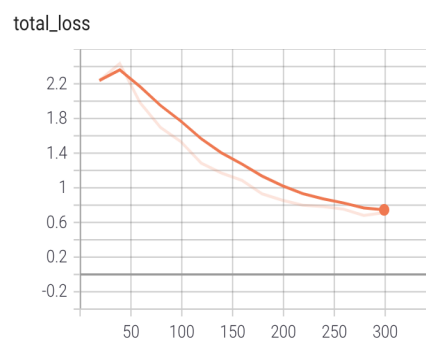**Figure 2**: total loss curve for COCOinit

Figure 3: total loss curve for INinit.

Predictions of COCOInit

It can be clearly seen that each nut annotated with a high confidence > 98%, and the mask fit each nut perfectly.
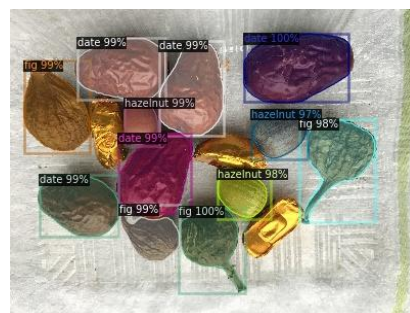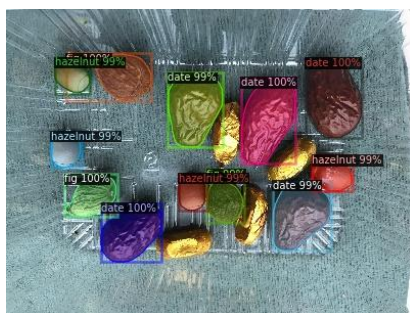

Figure 4 visualization of predictions for COCOInit model

Predictions for INinit

It also predicts each nut with high confidence > 96% but lower than COCOInit, also it can be clearly seen that each mask does not fit nuts perfectly.

Figure 5 visualization of predictions for INinit model

COCOInit Evaluation Results

Segmentation Results

AP	AP50	AP75	APs	Apm	API
92.721	100.00	100.00	NAN	92.496	92.300

bBox Results

AP	AP50	AP75	APs	Apm	API
82.485	100.00	93.729	NAN	81.254	85.732

INinit Evaluation Results

Segmentation Results

AP	AP50	AP75	APs	Apm	API
74.019	100.00	87.742	NAN	75.1	69.133

bBox Results

AP	AP50	AP75	APs	Apm	API
63.094	100.00	70.857	NAN	63.888	58.106

Result

It can be clearly seen that **COCOInit** outperforms **INinit**, this because COCOInit is pretrained on additional dataset.