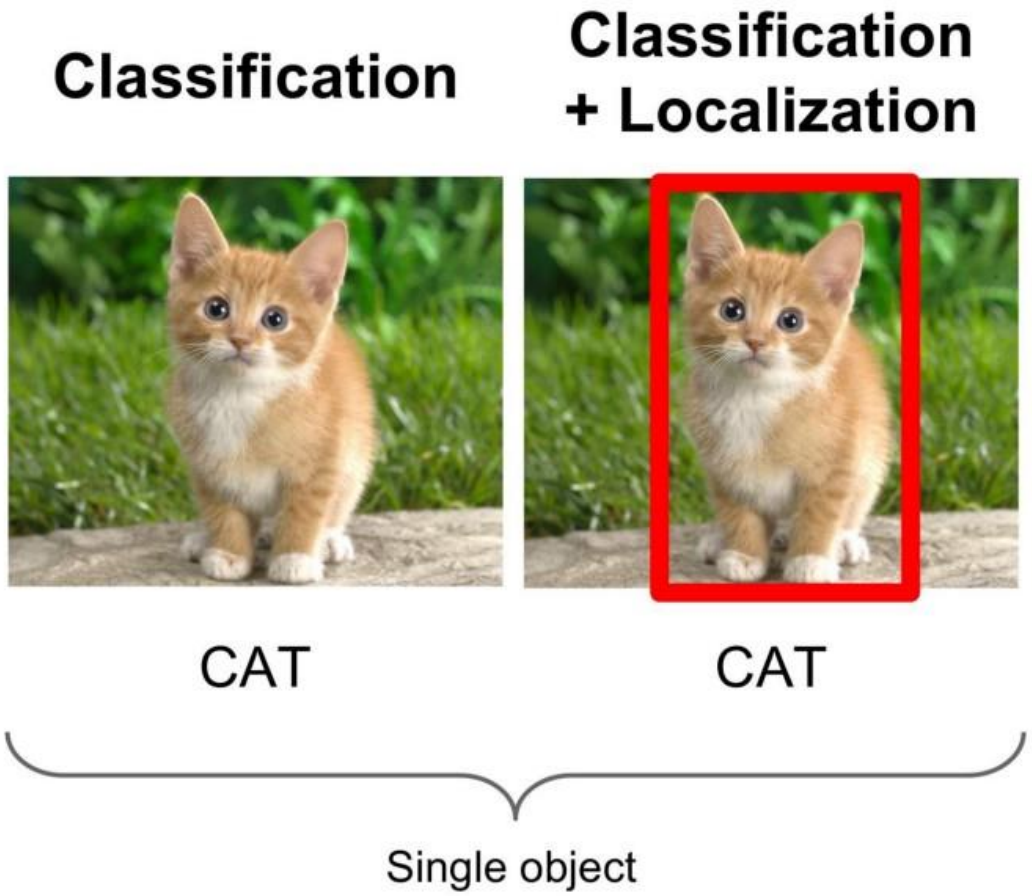
Implementasi Deteksi Buah Tomat dan Cabai

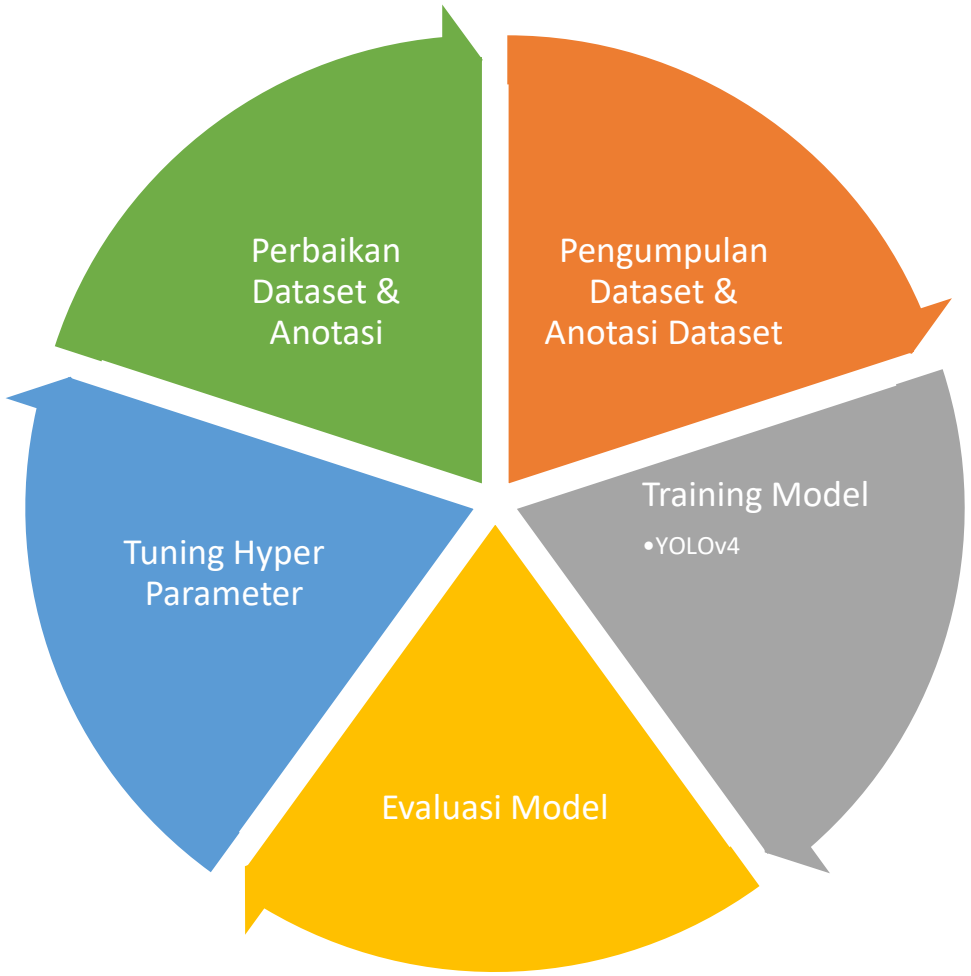
Perbedaan Deteksi dan Klasifikasi Dalam Computer Vision



Klasifikasi adalah proses kategorisasi suatu gambar ke dalam kelas yang telah ditentukan sebelumnya.

Deteksi adalah proses identifikasi yang menggabungkan klasifikasi dan lokalisasi suatu objek dalam suatu gambar.

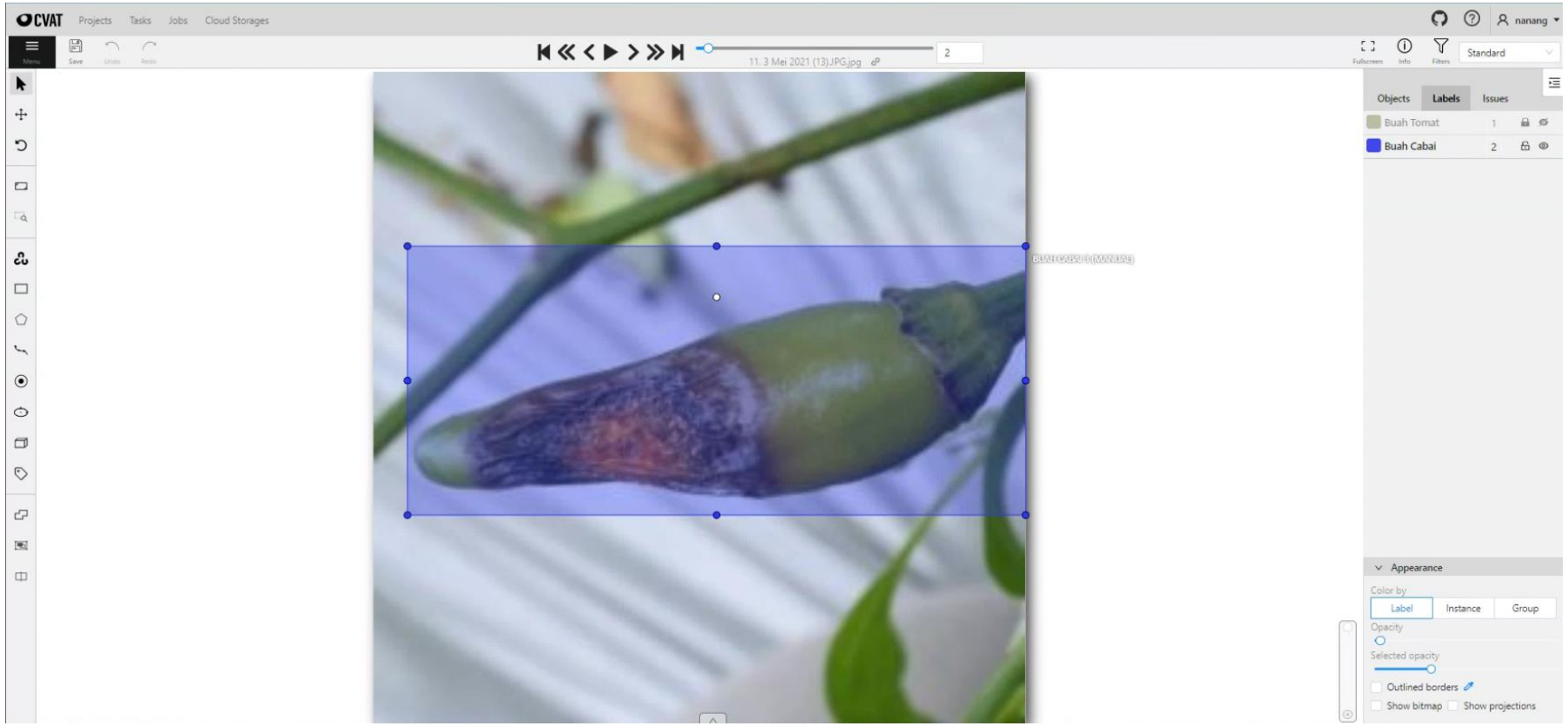
Proses Pembuatan Model



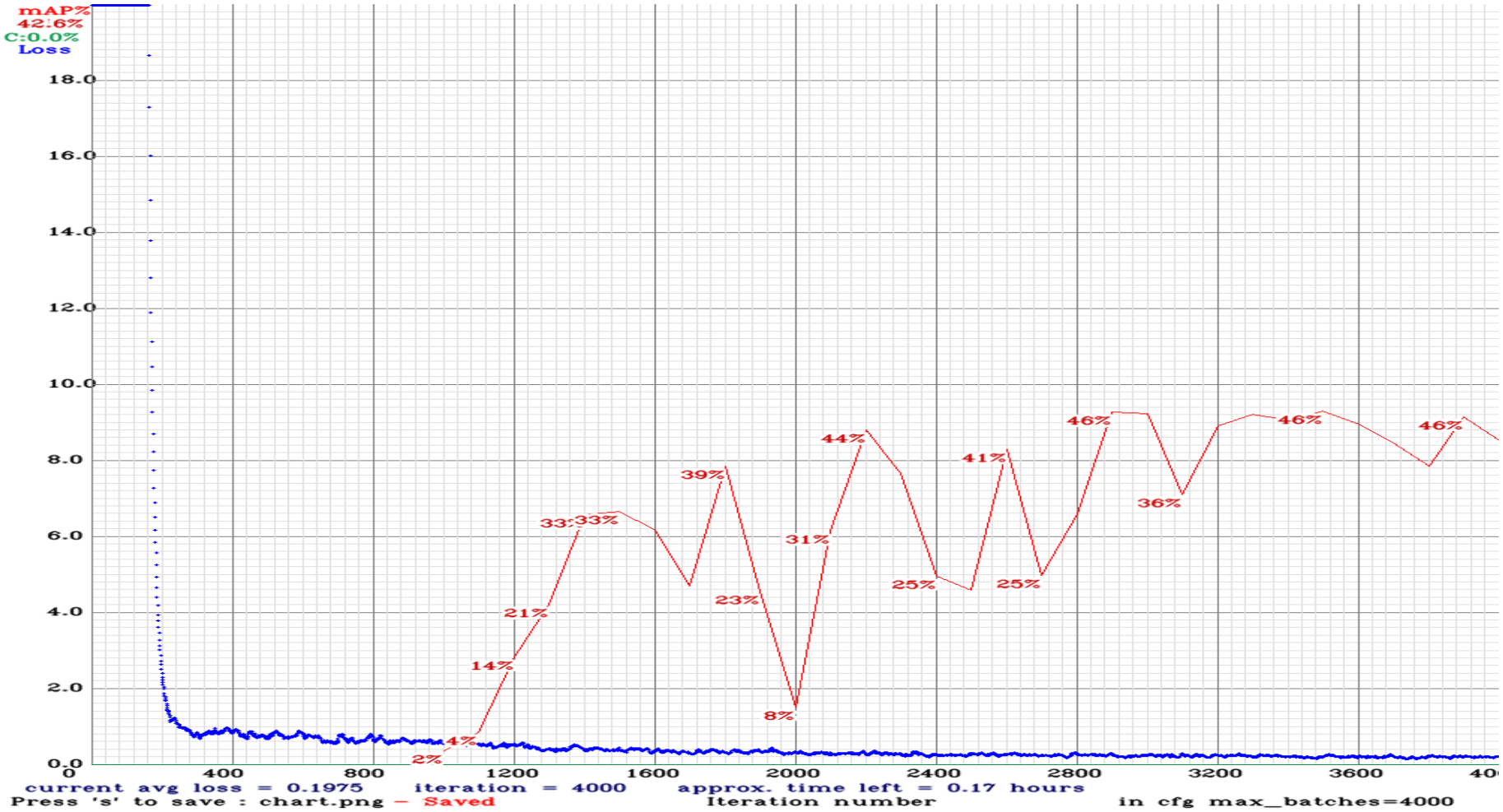
Dataset Deteksi Buah Tomat dan Cabai

Class	Train	Validation	Test
Buah Tomat	160	20	20
Buah Cabai	160	20	20

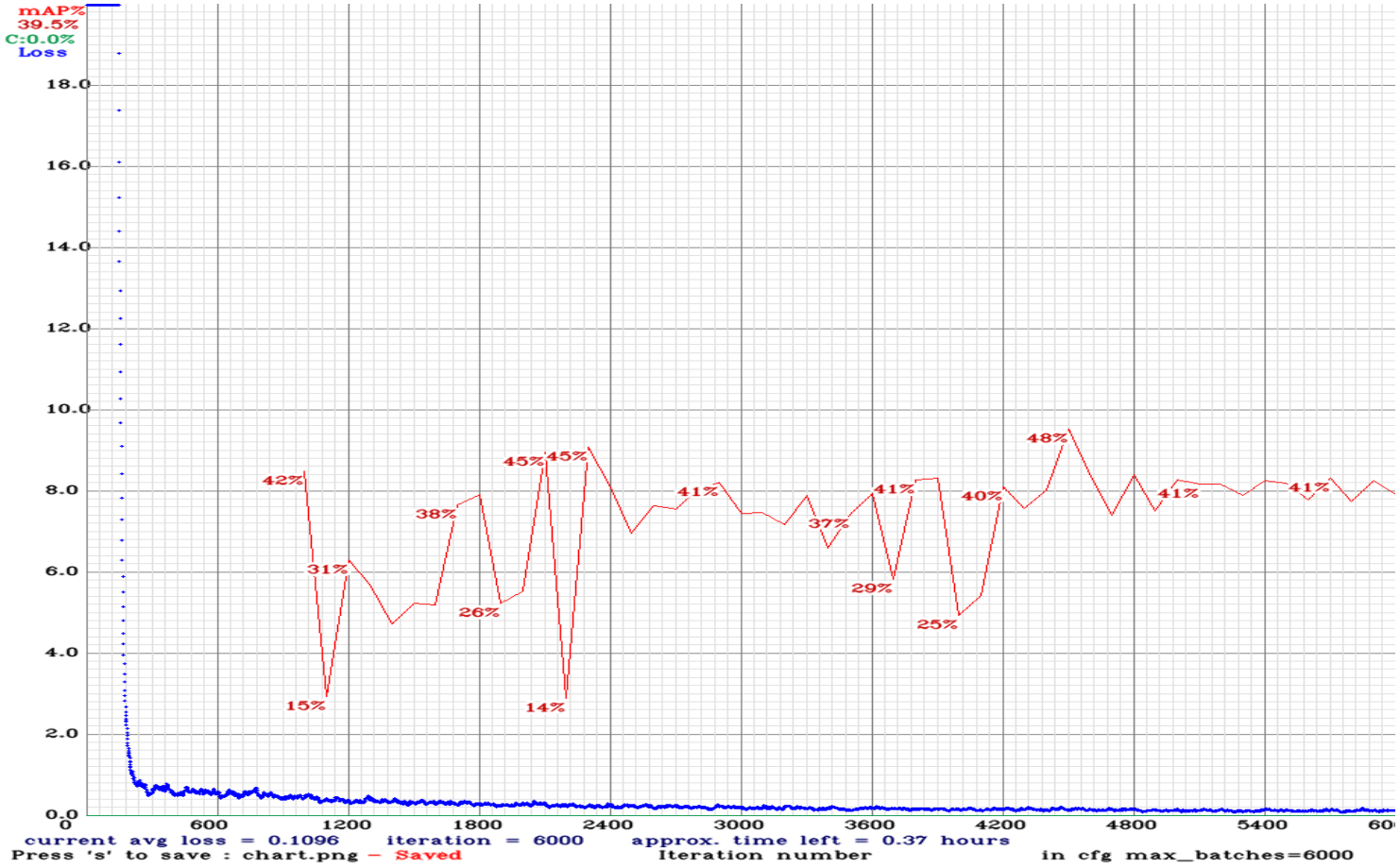
Anotasi per gambar
400 gambar butuh kurang lebih
3 jam (bervariasi tiap orang)



Hasil Training #1



Hasil Training #2



Evaluasi Training #1 dan #2

Hasil Evaluasi Menggunakan Test dataset Training #1

```
class_id = 0, name = Buah Tomat, ap = 0.00%      (TP = 0, FP = 0)
class_id = 1, name = Buah Cabai, ap = 92.95%     (TP = 19, FP = 3)

 for conf_thresh = 0.25, precision = 0.86, recall = 0.90, F1-score = 0.88
 for conf_thresh = 0.25, TP = 19, FP = 3, FN = 2, average IoU = 64.16 %

 IoU threshold = 50 %, used Area-Under-Curve for each unique Recall
 mean average precision (mAP@0.50) = 0.464752, or 46.48 %
Total Detection Time: 2 Seconds
```

Hasil Evaluasi Menggunakan Test dataset Training #2

```
class_id = 0, name = Buah Tomat, ap = 0.00%      (TP = 0, FP = 1)
class_id = 1, name = Buah Cabai, ap = 93.88%     (TP = 19, FP = 0)

 for conf_thresh = 0.25, precision = 0.95, recall = 0.90, F1-score = 0.93
 for conf_thresh = 0.25, TP = 19, FP = 1, FN = 2, average IoU = 69.46 %

 IoU threshold = 50 %, used Area-Under-Curve for each unique Recall
 mean average precision (mAP@0.50) = 0.469388, or 46.94 %
Total Detection Time: 1 Seconds
```

Pembahasan

- Buruknya hasil prediksi untuk kelas 0 (buah tomat) disebabkan oleh warning yang muncul pada proses training. Warning tersebut diduga diakibatkan galat pada ekstensi gambar yang digunakan untuk buah tomat.

Failed to infer label file name (check image extension is supported)

Asked 7 months ago Modified 7 months ago Viewed 232 times

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I am working on an object detection project
.tif. the model I work with to train my model
application. The objects should be categories
google drive Google Drive folders. Each folde

- backup ===> the weights of my model
- custom_weight ====> pre-train weight
- darknet ====> darknet folder (I costom
  yolov3.cfg)

```
20Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\20201019_100922.jpg.jpg
24Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\20201104_152620.jpg.jpg
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28Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\20201104_153202.jpg.jpg
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32Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\20201104_153354.jpg.jpg
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36Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\IMG_20210327_143259.jpg.jpg
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40Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\IMG_20210327_143325.jpg.jpg
Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\IMG_20210327_143331.jpg.jpg
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Failed to infer label file name (check image extension is supported): backup\deteksiv1\ds\val\obj_train_data\IMG_20210327_143354.jpg.jpg
```

Kesimpulan

- Pembuatan model deteksi buah tomat dan cabai dapat mencapai nilai f1score sebesar 88% hingga 93% namun hal ini memiliki koreksi karena terdapat warning kegagalan akses gambar diakibatkan ekstensi gambar.
  - Nilai mAP yang masih dibawah 50% menandakan bahwa model hanya mendeteksi salah satu kelas saja yakni buah cabai, sementara buah tomat gagal dideteksi.
- Diperlukan tim annotator yang bertugas untuk anotasi bounding box untuk membangun dataset deteksi organ dan dataset hama menggunakan deteksi objek.