| Metric | Value | Interpretation |
| --- | --- | --- |
| **mAP@0.5** | 0.956 | This is an excellent Mean Average Precision (mAP) at an Intersection Over Union (IoU) threshold of 0.5. It indicates that the model is performing exceptionally well in detecting objects, achieving high precision for a given recall when a moderate overlap with the ground truth is required. |
| **True Positives (TP)** | 9592 | The model correctly identified 9592 instances of the target object (class '0'). This is a high number of successful detections. |
| **False Negatives (FN)** | 537 | The model failed to detect 537 instances of the target object that were actually present in the images. These are missed detections. |
| **False Positives (FP)** | 1650 | The model incorrectly identified 1650 instances as the target object when there was no object present (i.e., it detected objects in the background). |
| **True Positives (normalized)** | 0.95 | 95% of the actual target objects (class '0') were correctly detected by the model. This represents very high recall for the object class. |
| **False Negatives (normalized)** | 0.05 | 5% of the actual target objects were missed by the model. |
| **False Positives (normalized)** | 1.00 (top-right cell) | This indicates that among instances where the true label was 'background', the model incorrectly predicted '0' (false positives) 100% of the time. This is consistent with the absolute FP count of 1650. |
| **Optimal F1-score** | 0.91 at 0.407 confidence | At a confidence threshold of 0.407, the model achieves its best F1-score of 0.91. This signifies an excellent balance between precision and recall, suggesting this is a good operating point for the model. |
| **Max Recall** | 0.99 at 0.000 confidence | At a very low confidence threshold (approaching 0), the model can achieve a recall of 0.99. This means it can detect almost all existing objects, though likely at the cost of significantly higher false positives due to the low threshold. |
| **Max Precision** | 1.00 at 0.888 confidence | At a high confidence threshold of 0.888, the model achieves perfect precision (1.00). This indicates that any detection made at or above this threshold is highly reliable and almost certainly a true positive. |