

Evaluation Metrics

Evaluation Metrics

Intersection over Union

- Example: Ship Detection

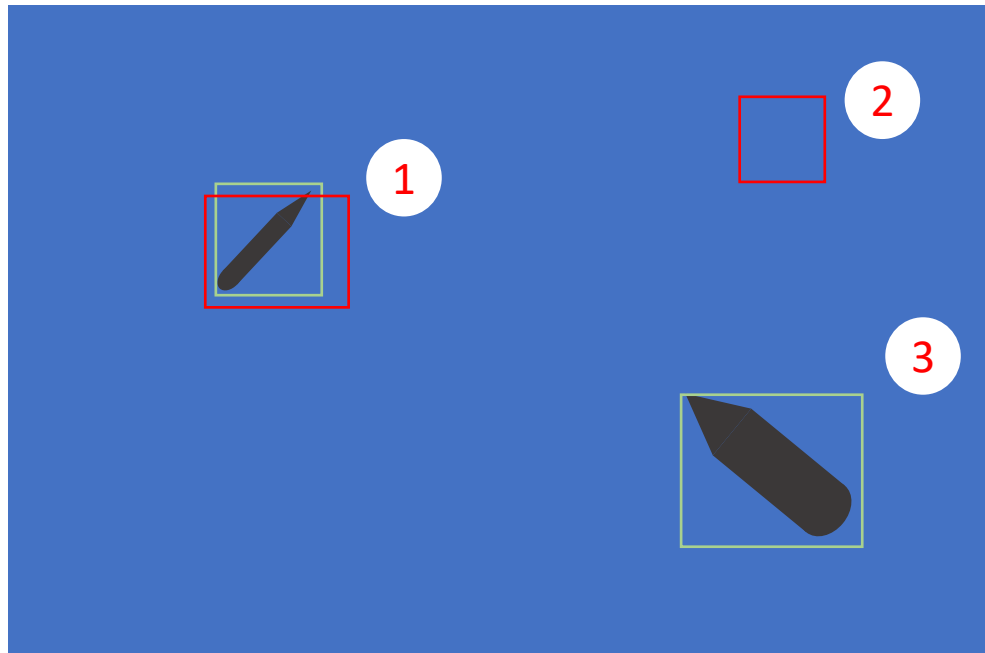
 Ground truth

 Prediction

 1 TP

 2 FP

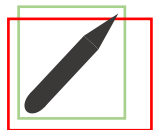
 3 FN




Object Detection: Accuracy Metrics

Intersection over Union

- How correct is a prediction?
- Intersection over Union (IoU)
 - Determine FP or TP



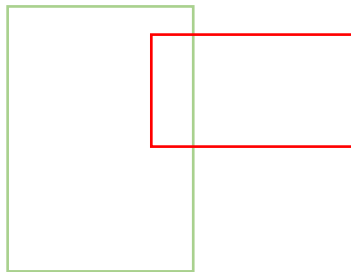
$$\text{IoU} = \frac{\text{Intersection}}{\text{Total combined area}} = \frac{\text{Intersection}}{\text{Total combined area}}$$
A diagram illustrating the components of the IoU formula. It shows two overlapping gray squares. The top square is labeled 'Intersection' and the bottom square is labeled 'Total combined area'.

Object Detection: Accuracy Metrics

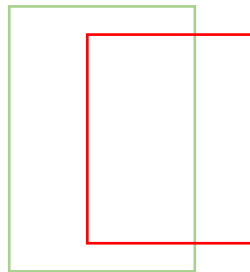
Intersection over Union

 Ground truth

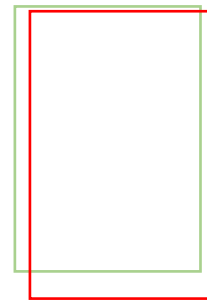
 Prediction



$\text{IoU} = 0.1$



$\text{IoU} = 0.5$



$\text{IoU} = 0.9$

Evaluation Metrics

Pixel Accuracy

- percent of correctly predicted pixels divided by overall pixels
- usually reported
 - for each class separately and
 - globally across all classes

$$\textit{Pixel accuracy} = \frac{TP + TN}{TP + TN + FP + FN}$$