KRISHAI TECHNOLOGIES

Segmentation Loss Functions

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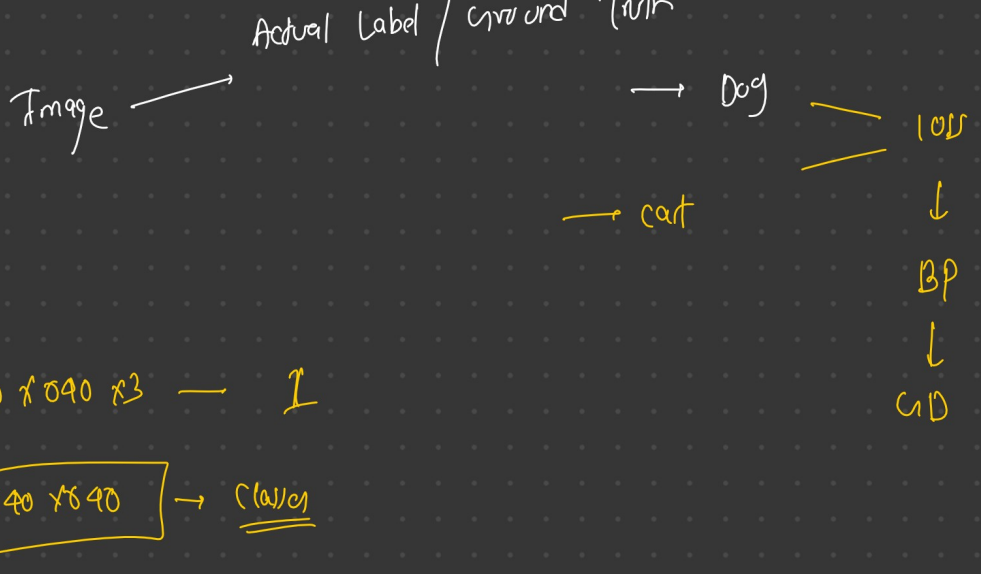
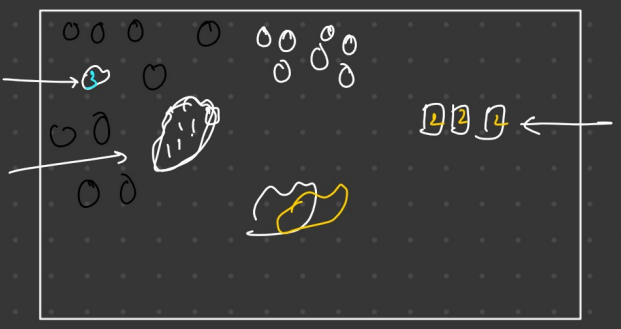


→ MSE

→ Segmented images often have small object region



— Cross-Entropy loss — Classify each pixel, but can struggle class imbalance

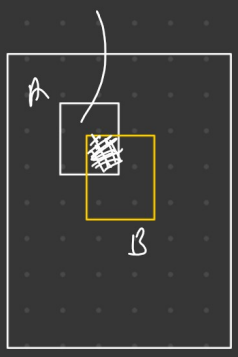
— IoU — Directly optimized the iou metric

(1) Cross-Entropy loss:

$$L_{CE} = -\frac{1}{N} \sum_{i=1}^{N} y_i \log(\hat{y}_i)$$

(2) Dice loss: $L_{Dice} = 1 - \frac{2 \Sigma (y \cdot \hat{y})}{\Sigma y + \Sigma \hat{y}}$

$$IoU = \frac{|A \cap B|}{|A \cup B|}$$



$$DICE = \frac{2|A \cap B|}{|A| + |B|}$$ → Intersection

$$|A \cup B| = |A| + |B| - |A \cap B|$$