

Deep Learning

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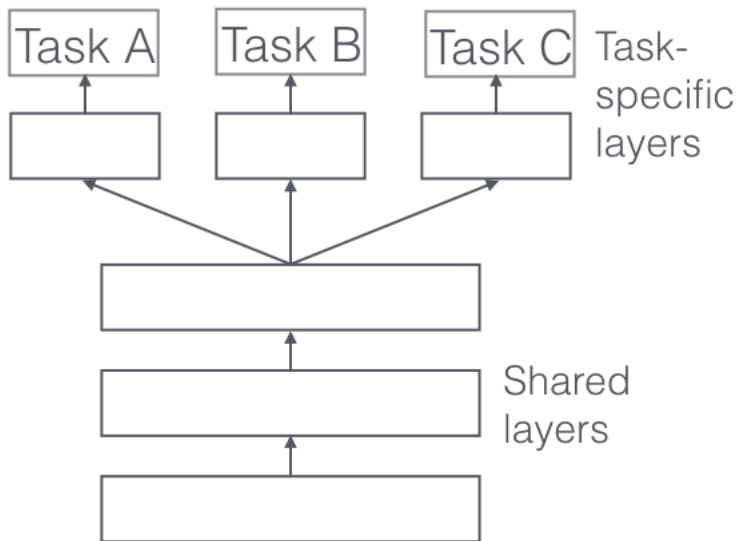


1 Multi-Task Learning

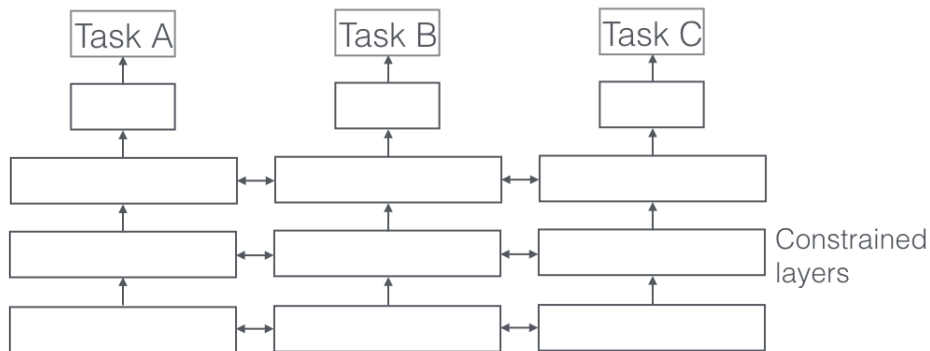
2 Metrics for Classification Problems

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- Training on a set of tasks that could benefit from having shared lower level features.
- Amount of data you have for each task is quite similar.
- Can train a big enough neural network to do well on all the tasks.

1 Multi-Task Learning

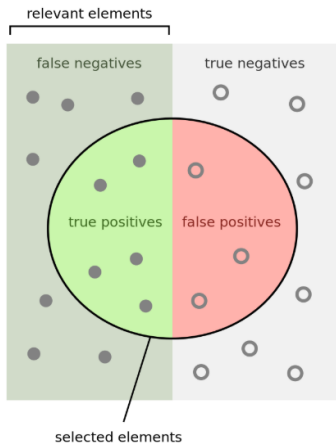
2 Metrics for Classification Problems

Definition 1

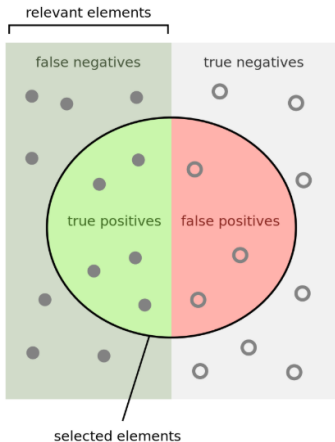
Accuracy in classification problems is the percent of correct predictions made by the model over all kinds predictions made:

$$\text{Accuracy} = \frac{\text{Number of correct predictions}}{\text{Total numbers of predictions made}}$$

Precision and Recall



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Answer: If $Precision = 0.1$ and $Recall = 0.95$, then their mean is equal to 0.525 and $F1 \approx 0.18$.

ROC Curve

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- The diagnostic performance of a test or the accuracy of a test to discriminate diseased cases from normal cases is evaluated using ROC curve analysis.
- A ROC curve is a way to compare diagnostic tests. It is a plot of true positive rate against the false positive rate:

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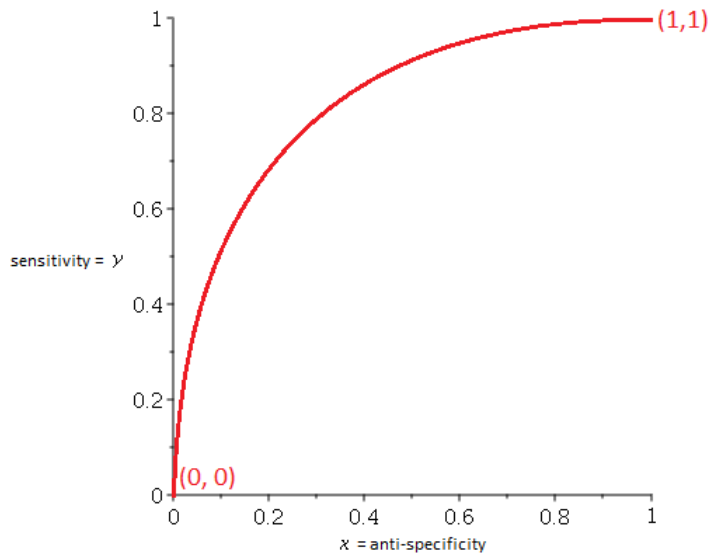
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- What if $AUC \approx 0.5$?
- What if $AUC \approx 1$?
- How to choose threshold?
- How to use ROC curve for multi-class model?