Performance Metrics

Contingency Table (Confusion Matrix)

True condition

	+	-
+	True Positive	False Positive (Type 1 Error)
-	False Negative (Type 2 Error)	True Negative

Predicted

$$Precision = \frac{TP}{TP + FP}$$

$$Recall = \frac{TP}{TP + FN}$$

$$Accuracy = \frac{TP + TN}{TP + TN + FP + FN}$$

$$Specificity\left(True\ Negative\ Rate\right) = \frac{TN}{TN + FP} = SPC$$

$$Sensitivity\left(True\ Positive\ Rate\ , TPR\right) = \frac{TP}{TP + FN} = Recall$$

$$Negative\ Predictive\ Value\,(NPV) = \frac{TN}{TN + FN}$$

$$Fall-out\,(False\ Positive\ Rate) = \frac{FP}{FP + TN} = 1 - SPC$$

$$False\ Discovery\ Rate\,(FDR) = \frac{FP}{FP + TP} = 1 - Precision$$

$$Miss\ Rate = \frac{FN}{FN + TP} = False\ Negative\ Rate$$

$$F-measure = 2 \times \frac{Precision \times Recall}{Precision + Recall}$$

$$gmeans = \sqrt{sensitivity \times specificity}$$

$$PRBEP \left(Precision\ Recall\ Break\ Even\ Point \right)$$

$$Informedness = Sensitivity + Specificity - 1$$

$$Markedness = Precision + NPV - 1$$