Jose Rizal University

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Computer Engineering Department

PTF3 - Evaluating Model Performance - Confusion Matrix

CPE C314 – ARTIFICIAL INTELLIGENCE 2

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Confusion Matrix		Actual	
		Counterfeit	Authentic
Predicted	Counterfeit	20	10
	Authentic	5	965

$tp = 965$

$tn = 20$

$fp = 10$

$fn = 5$

$$Accuracy = \frac{\text{tp+tn}}{tp+tn+fp+fn}$$

$$Accuracy = \frac{965+20}{965+20+10+5}$$

$$Accuracy = \frac{985}{1000}$$

$$\boxed{\boldsymbol{Accuracy = 0.985\ or\ 98.5\%}}$$

$$Specificity = \frac{tn}{(tn+fp)}$$

$$Specificity = \frac{20}{(20+10)}$$

$$Specificity = \frac{20}{30}$$

$$\boxed{\boldsymbol{Specificity = 0.6667\ or\ 66.67\%}}$$

$$Precision = \frac{tp}{(tp+fp)}$$

$$Precision = \frac{965}{(965+10)}$$

$$Precision = \frac{965}{975}$$

$$\boxed{\boldsymbol{Precision = 0.9897\ or\ 98.97\%}}$$

$$F1\ Score = 2 * (\frac{P*R}{P+R})$$

$$F1\ Score = 2 * (\frac{0.9897*0.6667}{0.9897+0.6667})$$

$$\boxed{\boldsymbol{F1\ Score = 0.7967\ or\ 79.67\%}}$$

$$Recall = \frac{tp}{(tp+fn)}$$

$$Recall = \frac{965}{(965+15)}$$

$$Recall = \frac{965}{980}$$

$$\boxed{\boldsymbol{Recall = 0.9948\ or\ 99.48\%}}$$