

Deep Learning

Lab 06

2019.10.03

Confusion Matrix

		Predicted class	
		P'	N'
Actual Class	P	True Positives (TP)	False Negatives (FN)
	N	False Positives (FP)	True Negatives (TN)

Evaluation Metrics

- In practice:
 - *Precision*

$$PRE := \frac{TP}{P'}$$

Predicted class

		Predicted class	
		P'	N'
Actual Class	P	True Positives (TP)	False Negatives (FN)
	N	False Positives (FP)	True Negatives (TN)

Evaluation Metrics

- In practice:
 - *Precision*
 - *Recall*

$$REC := \frac{TP}{P}$$

		Predicted class	
		P'	N'
Actual Class	P	True Positives (TP)	False Negatives (FN)
	N	False Positives (FP)	True Negatives (TN)

Evaluation Metrics

- In practice:
 - *Precision*

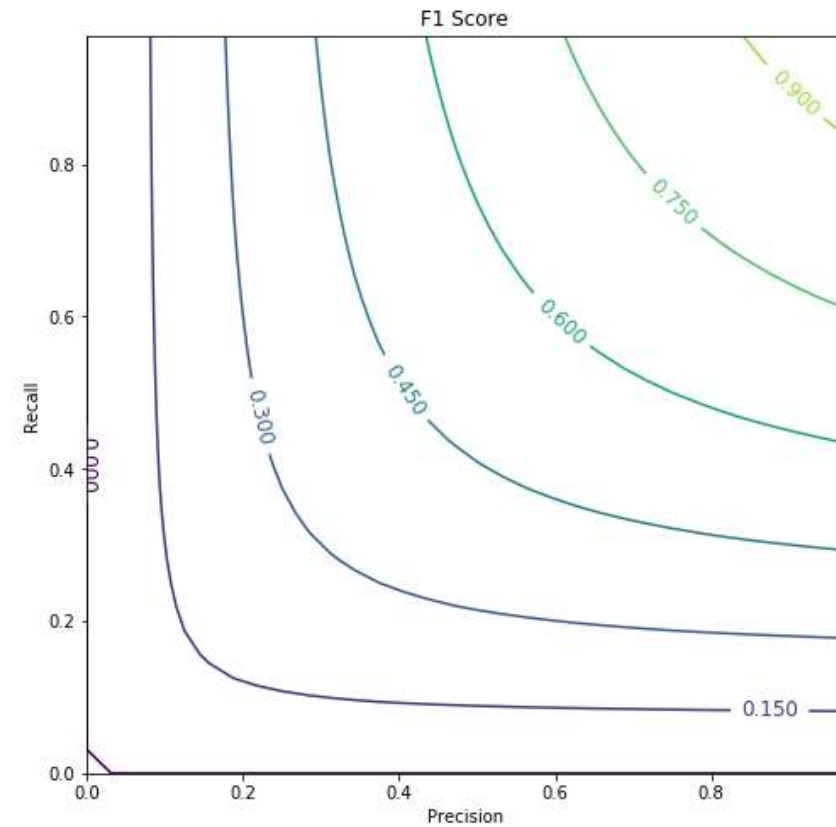
$$PRE := \frac{TP}{P'}$$

- *Recall*

$$REC := \frac{TP}{P}$$

- *F₁ – Score*

$$F_1 := \frac{2(REC \times PRE)}{REC + PRE}$$



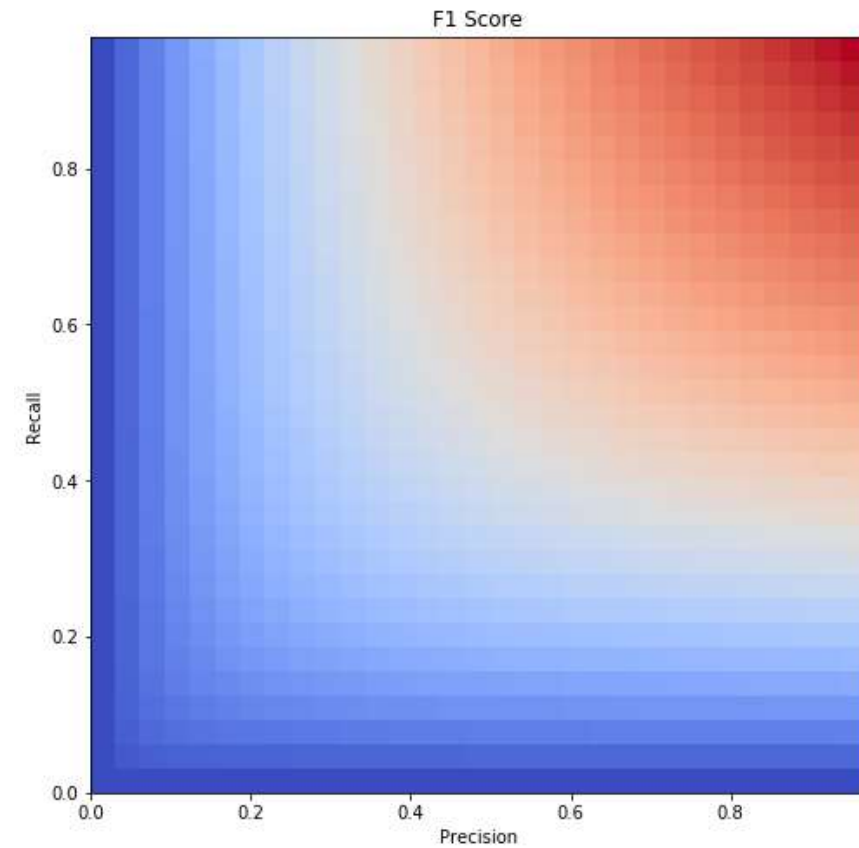
Evaluation Metrics

- In practice:
 - *Precision*
 - *Recall*
 - *F₁ – Score*

$$PRE := \frac{TP}{P'}$$

$$REC := \frac{TP}{P}$$

$$F_1 := \frac{2(REC \times PRE)}{REC + PRE}$$



Evaluation Metrics

- In practice:
 - *True Positive Rate*

$$TPR := \frac{TP}{P}$$

Predicted class

		P'	N'
Actual Class	P	True Positives (TP)	False Negatives (FN)
	N	False Positives (FP)	True Negatives (TN)

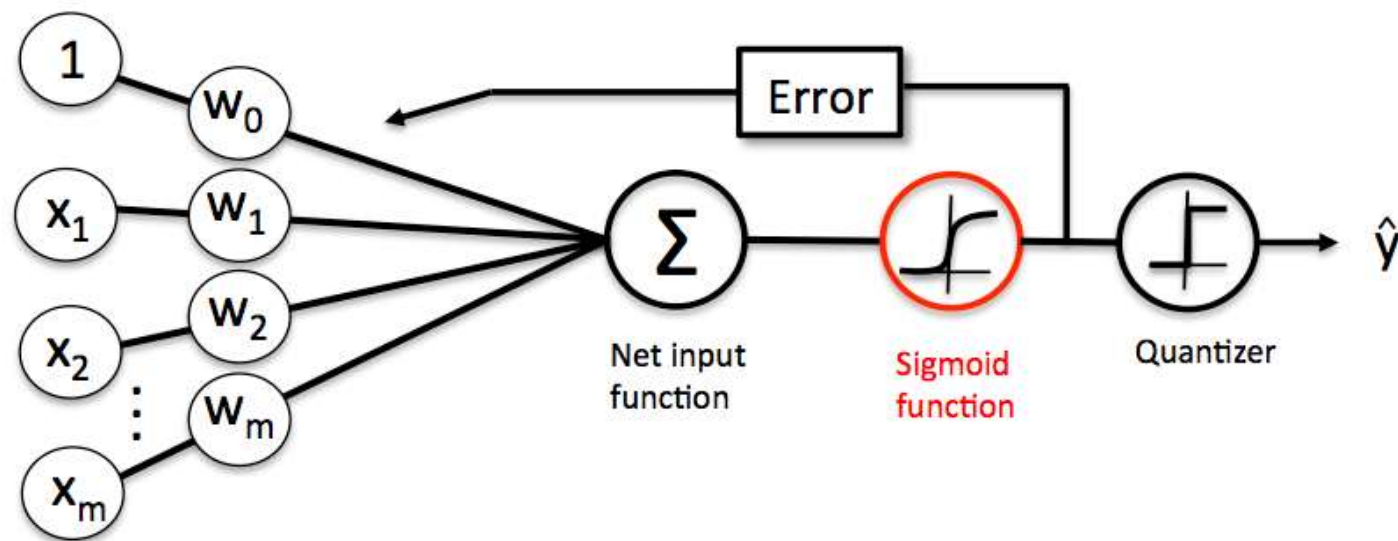
Evaluation Metrics

- In practice:
 - *True Positive Rate*
 - *False Positive Rate*

$$FPR := \frac{FP}{N}$$

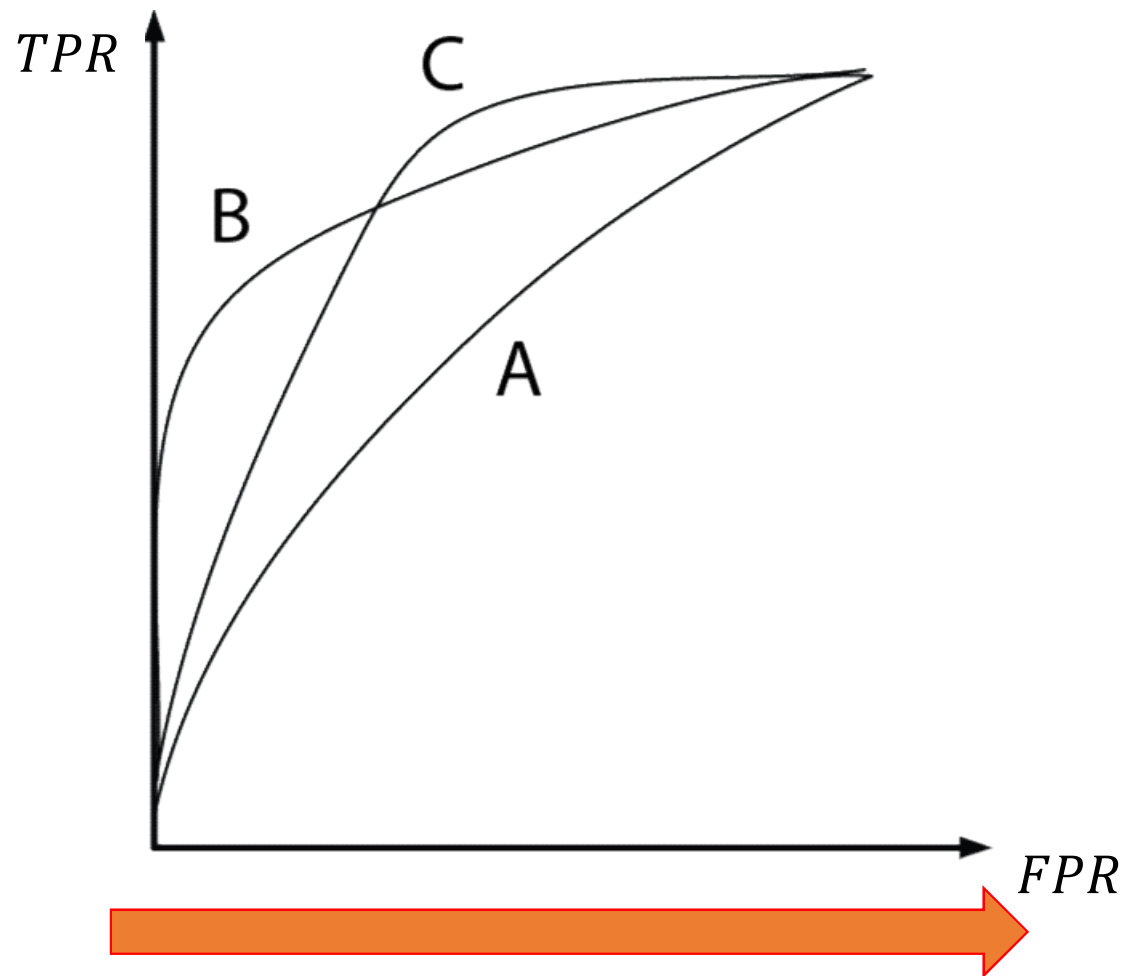
		Predicted class	
		P'	N'
Actual Class	P	True Positives (TP)	False Negatives (FN)
	N	False Positives (FP)	True Negatives (TN)

Logistic Regression

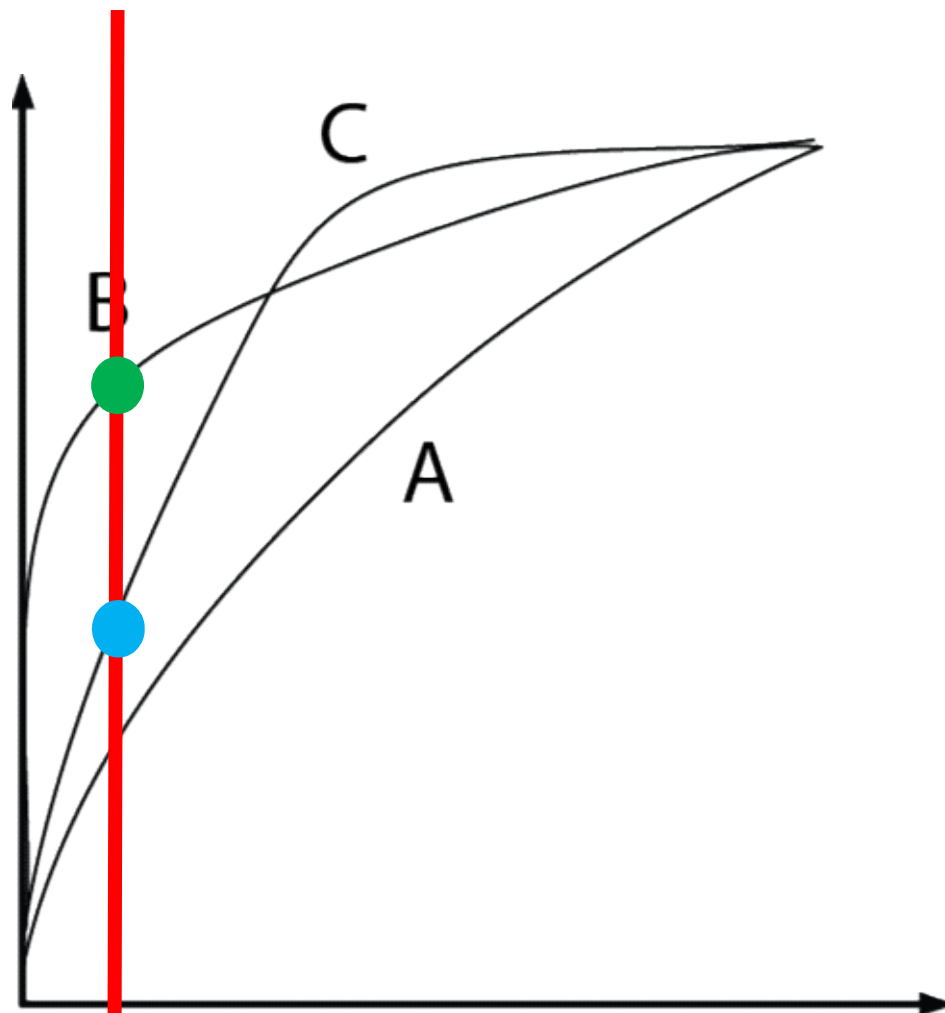


ROC Curve

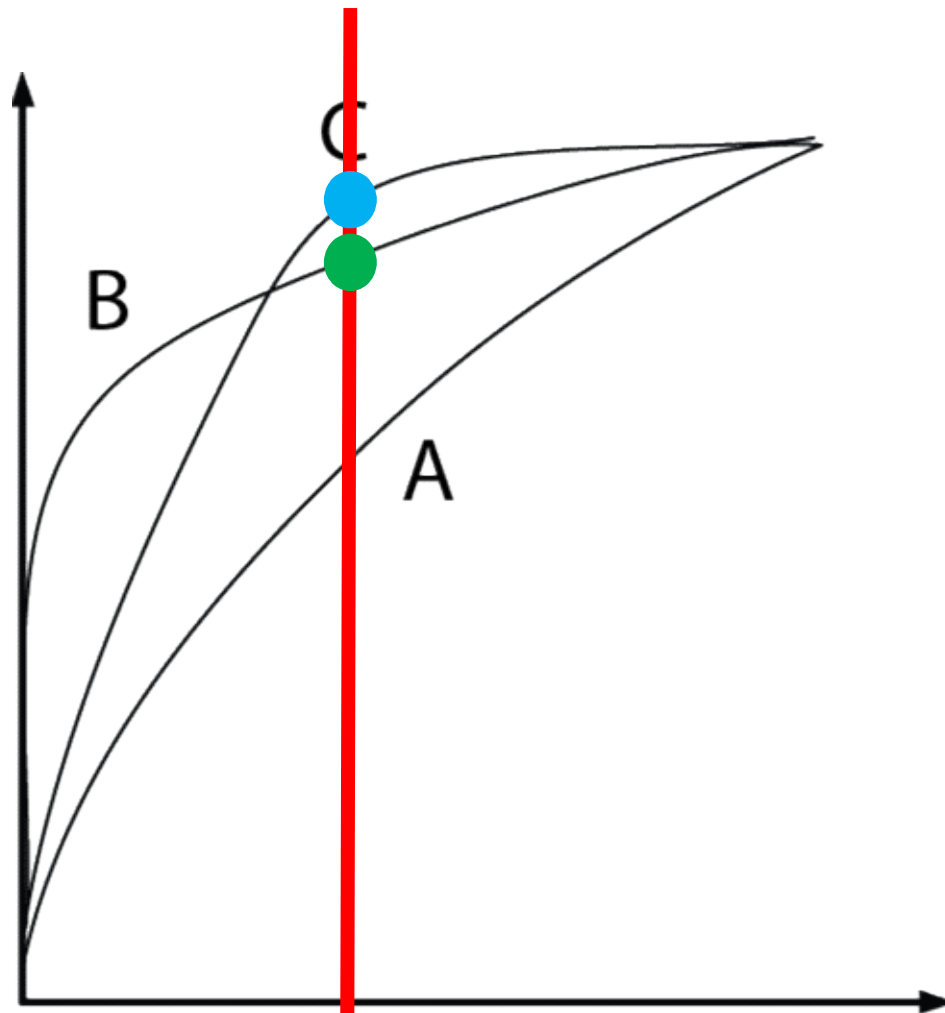
1	θ ↓
1	
0.87	
0.64	
\vdots	
-0.88	
-0.93	
-1	



ROC Curve



ROC Curve



Homework

- Arrhythmia dataset
 - 80% Training – 20% Testing
- Logistic Regression model
 - Handcrafted
 - F_1 – *Score* of confusion matrix on test-set should be at least 0.75

Homework

- Arrhythmia dataset
- Logistic Regression model
- **Deadline : 2019/10/10 (Thr) 23:59**