

Manufacturing Defect Prediction

Naive Bayes Classification

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Smoothing	n(Train)	n(Test)	Test Accuracy
0.000	2592	648	0.900

Data Split



Confusion Matrix

		Predicted	
		0	1
Observed	0	41	60
	1	5	542

Model Performance Metrics

	0	1	Average / Total
Support	101	547	648
Accuracy	0.900	0.900	0.900
Precision (Positive Predictive Value)	0.891	0.900	0.899
Recall (True Positive Rate)	0.406	0.991	0.900
False Positive Rate	0.009	0.594	0.302
False Discovery Rate	0.109	0.100	0.104
F1 Score	0.558	0.943	0.883
Matthews Correlation Coefficient	0.560	0.560	0.560
Area Under Curve (AUC)	0.698	0.698	0.698
Negative Predictive Value	0.900	0.891	0.896
True Negative Rate	0.991	0.406	0.698
False Negative Rate	0.594	0.009	0.302
False Omission Rate	0.100	0.109	0.104
Threat Score	0.586	4.336	2.461
Statistical Parity	0.071	0.929	1.000

Note. All metrics are calculated for every class against all other classes.

Mean dropout loss	
MaintenanceHours	0.409
DefectRate	0.381
QualityScore	0.361
ProductionVolume	0.323
AdditiveMaterialCost	0.281
ProductionCost	0.280
DowntimePercentage	0.279
InventoryTurnover	0.278
DeliveryDelay	0.278
SupplierQuality	0.278
EnergyConsumption	0.278
EnergyEfficiency	0.277
SafetyIncidents	0.277
WorkerProductivity	0.277
StockoutRate	0.277
AdditiveProcessTime	0.276

Note. Mean dropout loss is based on 50 permutations.

