

ภาคผนวก ค

ผลทดสอบตัวแบบ

1.ผลทดสอบตัวแบบ Gas porosity Defect Classifier J48 Decision (k-fold cross validation)

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances	26083	92.1498 %
Incorrectly Classified Instances	2222	7.8502 %
Kappa statistic	0.5942	
Mean absolute error	0.1436	
Root mean squared error	0.2682	
Relative absolute error	57.6703 %	
Root relative squared error	76.0074 %	
Total Number of Instances	28305	

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.462	0	0.999	0.462	0.632	0.723	Y
1	0.538	0.916	1	0.956	0.723	N

=== Confusion Matrix ===

a b <-- classified as

1905 2220 | a = Y

2 24178 | b = N

2.ผลทดสอบตัวแบบ Gas porosity Defect J48 Decision Tree ด้วย Test set ครั้งที่ 1

== Re-evaluation on test set ==

User supplied test set

Relation: Gas porosity test set1

Instances: 27999

Attributes: 6

=== Summary ===

Correctly Classified Instances	25784	92.089 %
Incorrectly Classified Instances	2215	7.911 %
Kappa statistic	0.5952	
Mean absolute error	0.144	
Root mean squared error	0.269	
Total Number of Instances	27999	

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.463	0	1	0.463	0.633	0.735	Y
1	0.537	0.915	1	0.956	0.735	N

=== Confusion Matrix ===

```

a   b  <-- classified as
1910 2215 |   a = Y
0 23874 |   b = N

```

3. ผลทดสอบตัวแบบ Gas porosity Defect J48 Decision Tree ด้วย Test set ครั้งที่ 2

== Re-evaluation on test set ==

User supplied test set

Relation: Gas porosity test set2

Instances: 27000

Attributes: 6

=== Summary ===

Correctly Classified Instances	24793	91.8259 %
Incorrectly Classified Instances	2207	8.1741 %
Kappa statistic	0.5946	
Mean absolute error	0.146	
Root mean squared error	0.273	

Total Number of Instances 27000

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.464	0	1	0.464	0.634	0.735	Y
1	0.536	0.912	1	0.954	0.735	N

=== Confusion Matrix ===

a b <-- classified as

1910 2207 | a = Y

0 22883 | b = N

4. ผลทดสอบตัวแบบจำลอง Flow Porosity Defect Classifier J48 Decision (k-fold cross validation)

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances 25515 90.1431 %

Incorrectly Classified Instances 2790 9.8569 %

Kappa statistic 0.4882

Mean absolute error 0.1765

Root mean squared error 0.2972

Relative absolute error 67.683 %

Root relative squared error 82.3035 %

Total Number of Instances 28305

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.361	0	1	0.361	0.53	0.673	Y
1	0.639	0.896	1	0.945	0.673	N

=== Confusion Matrix ===

a b <-- classified as

1573 2790 | a = Y

0 23942 | b = N

5.ผลทดสอบตัวแบบจำลอง Flow Porosity Defect Classifier Trees J48 ด้วย Test set ครั้งที่1

=== Re-evaluation on test set ===

User supplied test set

Relation: Flow Porosity model test2

Instances: 27999

Attributes: 5

=== Summary ===

Correctly Classified Instances 25212 90.0461 %

Incorrectly Classified Instances 2787 9.9539 %

Kappa statistic 0.4884

Mean absolute error 0.1771

Root mean squared error 0.2984

Total Number of Instances 27999

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.361	0	1	0.361	0.531	0.683	Y
1	0.639	0.895	1	0.944	0.683	N

=== Confusion Matrix ===

a b <-- classified as

1576 2787 | a = Y

0 23636 | b = N

6.ผลทดสอบตัวแบบจำลอง Flow Porosity Defect Classifier Trees J48 ด้วย Test set ครั้งที่2

=== Re-evaluation on test set ===

User supplied test set

Relation: Flow Porosity model test3

Instances: 27706

Attributes: 5

=== Summary ===

Correctly Classified Instances 24919 89.9408 %

Incorrectly Classified Instances 2787 10.0592 %

Kappa statistic 0.4879

Mean absolute error 0.1779

Root mean squared error 0.2997

Total Number of Instances 27706

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.361	0	1	0.361	0.531	0.683	Y
1	0.639	0.893	1	0.944	0.683	N

=== Confusion Matrix ===

a b <-- classified as

1576 2787 | a = Y

0 23343 | b = N

7. ผลทดสอบตัวแบบจำลอง Clod Shot porosity Defect Classifier J48 Decision (k-fold cross validation)

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances 27680 97.7919 %

Incorrectly Classified Instances 625 2.2081 %

Kappa statistic 0.6693

Mean absolute error 0.0418

Root mean squared error 0.145

Relative absolute error 50.5056 %

Root relative squared error 71.2817 %

Total Number of Instances 28305

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.542	0.002	0.912	0.542	0.68	0.76	Y
0.998	0.458	0.98	0.998	0.989	0.76	N

=== Confusion Matrix ===

a b <-- classified as

664 561 | a = Y

64 27016 | b = N

8. ผลทดสอบตัวแบบจำลอง Cold Shot porosity Defect Classifier Trees J48 ด้วย

Test set ครั้งที่ 1

=== Re-evaluation on test set ===

User supplied test set

Relation: Cold shot porosity test data1

Instances: 27173

Attributes: 5

=== Summary ===

Correctly Classified Instances 26577 97.8066 %

Incorrectly Classified Instances 596 2.1934 %

Kappa statistic 0.676

Mean absolute error 0.0417

Root mean squared error 0.1444

Total Number of Instances 27173

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.549	0.002	0.916	0.549	0.687	0.777	Y
0.998	0.451	0.98	0.998	0.989	0.777	N

=== Confusion Matrix ===

```
a    b  <-- classified as
```

```
653  536 |    a = Y
```

```
60 25924 |    b = N
```

9. ผลทดสอบตัวแบบจำลอง Cold Shot porosity Defect Classifier Trees J48 ด้วย

Test set ครั้งที่ 2

=== Re-evaluation on test set ===

User supplied test set

Relation: Cold shot porosity test data2

Instances: 26600

=== Summary ===

Correctly Classified Instances	26005	97.7632 %
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Incorrectly Classified Instances	595	2.2368 %
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Kappa statistic	0.6762
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Mean absolute error	0.0421
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Root mean squared error	0.1459
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Total Number of Instances	26600
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TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
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0.549	0.002	0.917	0.549	0.687	0.779	Y
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0.998	0.451	0.979	0.998	0.988	0.779	N
-------	-------	-------	-------	-------	-------	---

=== Confusion Matrix ===

```
a    b  <-- classified as
```

```
653  536 |    a = Y
```

```
59 25352 |    b = N
```

10. ผลการทดสอบตัวแบบจำลอง Hot Crack Porosity Defect Classifier J48

Decision (k-fold cross validation)

Correctly Classified Instances	27239	96.2339 %
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Incorrectly Classified Instances	1066	3.7661 %
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Kappa statistic	0.7136
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```

Mean absolute error      0.0723
Root mean squared error  0.1902
Relative absolute error  44.5078 %
Root relative squared error  66.748 %
Total Number of Instances 28305

```

=== Detailed Accuracy By Class ===

```

TP Rate  FP Rate  Precision  Recall  F-Measure  ROC Area  Class
0.578    0        0.999    0.578    0.732    0.779    Y
1        0.422    0.96    1        0.98    0.779    N

```

=== Confusion Matrix ===

```

a    b  <-- classified as
1458 1065 |   a = Y
1 25781 |   b = N

```

11. ผลการทดสอบตัวแบบจำลอง Hot Crack Porosity Defect Classifier Trees J48 ด้วย Test Set ครั้งที่ 1

User supplied test set

Relation: Hot Crack porosity test set1-weka.filters.unsupervised.attribute.Remove-R1-7,9,11,13-16,18

Instances: unknown (yet). Reading incrementally

Attributes: 4

=== Summary ===

```

Correctly Classified Instances  26703      94.3402 %
Incorrectly Classified Instances  1602      5.6598 %
Kappa statistic                0.6193
Mean absolute error            0.0897
Root mean squared error        0.2315
Total Number of Instances      27000

```

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.477	0	1	0.477	0.646	0.739	Y
1	0.523	0.94	1	0.969	0.739	N

=== Confusion Matrix ===

```

a   b  <-- classified as
1461 1602 |   a = Y
0   25242 |   b = N

```

12. ผลการทดสอบตัวแบบจำลอง Hot Crack Porosity Classifier Trees J48 ด้วย Test Set ครั้งที่2

User supplied test set

Relation: Hot Crack porosity test set2

Instances: 25734

Attributes: 4

=== Summary ===

Correctly Classified Instances	24693	95.9548 %
Incorrectly Classified Instances	1041	4.0452 %
Kappa statistic	0.7136	
Mean absolute error	0.0746	
Root mean squared error	0.1968	
Total Number of Instances	25734	

=== Detailed Accuracy By Class ===

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.58	0	0.999	0.58	0.734	0.792	Y
1	0.42	0.957	1	0.978	0.792	N

=== Confusion Matrix ===

```

a   b  <-- classified as
1435 1040 |   a = Y
1   23258 |   b = N

```