

# Estimating financial fraud through transaction-level features and machine learning

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**Table S1:** Detailed results of repeated 10-fold cross-validation for 15 repeats

Fold	Accuracy	ROC AUC	F1 Score
Repeat - 1			
1	0.997	0.999	0.999
2	0.998	1.000	1.000
3	0.998	0.997	1.000
4	0.998	0.997	0.998
5	1.000	0.998	0.997
6	1.000	0.997	0.997
7	0.997	0.999	0.998
8	1.000	0.998	0.998
9	1.000	0.997	0.997
10	0.997	0.997	0.998
Mean	0.999	0.998	0.998
Repeat - 2			
1	0.999	0.997	0.998
2	0.998	1.000	0.999
3	1.000	1.000	0.997
4	0.997	0.997	0.997
5	0.997	0.999	0.997
6	0.997	0.997	0.997
7	0.997	0.998	1.000
8	0.998	0.999	0.997
9	0.999	0.998	0.997
10	0.998	1.000	0.997
Mean	0.998	0.999	0.998
Repeat - 3			

1	1.000	1.000	0.997
2	0.999	0.998	0.999
3	0.999	1.000	0.997
4	0.997	1.000	0.998
5	0.998	0.997	0.997
6	1.000	0.999	0.998
7	0.999	0.999	0.999
8	0.999	1.000	1.000
9	0.997	1.000	0.998
10	0.997	0.998	1.000
Mean	0.999	0.999	0.998
Repeat - 4			
1	0.997	0.999	0.997
2	0.997	1.000	0.998
3	0.997	0.997	1.000
4	0.997	1.000	0.997
5	1.000	0.997	0.997
6	1.000	0.998	0.997
7	1.000	0.998	0.999
8	0.998	1.000	0.998
9	0.997	0.998	0.997
10	0.998	0.999	0.999
Mean	0.998	0.999	0.998
Repeat - 5			
1	0.998	0.997	1.000
2	0.997	0.997	1.000
3	0.997	1.000	1.000
4	0.998	0.997	0.998
5	1.000	1.000	0.997
6	0.997	0.997	0.999
7	0.997	0.999	1.000
8	1.000	0.997	0.997
9	0.999	0.999	1.000
10	0.998	0.998	0.997
Mean	0.998	0.998	0.999
Repeat - 6			
1	0.997	0.998	0.997
2	0.998	0.997	0.997
3	0.999	0.999	0.997
4	1.000	0.999	1.000
5	1.000	0.997	0.997
6	1.000	0.997	0.997
7	1.000	0.997	1.000
8	0.999	0.999	0.998
9	0.997	0.997	0.999

10	0.997	0.998	0.999
Mean	0.999	0.998	0.998
Repeat - 7			
1	1.000	1.000	1.000
2	0.998	0.997	1.000
3	0.999	0.997	0.997
4	1.000	1.000	1.000
5	0.997	0.998	0.998
6	0.999	0.999	0.998
7	1.000	0.997	0.998
8	0.998	0.997	0.997
9	0.997	0.997	0.997
10	0.997	0.997	0.999
Mean	0.999	0.998	0.998
Repeat - 8			
1	0.998	0.997	0.999
2	0.997	1.000	0.997
3	1.000	0.997	0.998
4	0.999	0.999	0.997
5	1.000	0.998	1.000
6	1.000	0.997	1.000
7	1.000	0.997	0.998
8	0.997	1.000	0.997
9	1.000	1.000	0.997
10	0.997	0.997	0.998
Mean	0.999	0.998	0.998
Repeat - 9			
1	1.000	0.997	0.998
2	0.999	0.997	1.000
3	1.000	0.999	1.000
4	1.000	0.997	1.000
5	0.997	0.997	0.998
6	0.997	0.997	1.000
7	1.000	0.999	0.999
8	0.999	0.998	0.997
9	1.000	0.997	0.999
10	0.998	1.000	0.997
Mean	0.999	0.998	0.999
Repeat - 10			
1	0.997	0.997	0.997
2	0.997	0.997	0.999
3	1.000	0.998	0.998
4	0.997	0.999	0.997
5	1.000	0.999	0.999
6	1.000	0.997	0.999

7	0.999	0.999	1.000
8	1.000	0.999	0.999
9	1.000	1.000	0.998
10	0.997	1.000	0.999
Mean	0.999	0.999	0.999
Repeat - 11			
1	0.997	0.997	1.000
2	0.998	0.999	0.998
3	0.997	1.000	0.997
4	0.997	0.999	0.998
5	1.000	0.998	0.997
6	0.999	1.000	1.000
7	0.999	0.997	0.998
8	0.997	0.999	0.998
9	0.997	0.998	0.997
10	0.998	0.999	0.998
Mean	0.998	0.999	0.998
Repeat - 12			
1	0.999	0.997	0.999
2	0.998	1.000	0.998
3	1.000	0.997	0.997
4	0.997	1.000	1.000
5	0.998	0.998	0.997
6	0.998	0.998	0.997
7	0.997	0.997	0.997
8	0.999	0.997	0.998
9	0.997	1.000	0.997
10	1.000	0.997	1.000
Mean	0.998	0.998	0.998
Repeat - 13			
1	0.998	0.997	0.998
2	0.998	0.998	0.997
3	0.998	0.997	1.000
4	0.997	0.997	1.000
5	0.997	0.997	0.997
6	0.997	0.997	0.999
7	0.997	0.999	1.000
8	0.997	0.997	1.000
9	0.997	0.998	0.997
10	0.997	0.999	0.998
Mean	0.997	0.998	0.999
Repeat - 14			
1	1.000	0.997	0.997
2	0.998	0.997	0.997
3	0.999	0.998	0.997

4	0.999	0.999	0.999
5	0.997	0.997	1.000
6	0.997	0.998	0.997
7	0.999	0.997	0.999
8	0.997	1.000	0.998
9	0.997	1.000	0.997
10	0.997	0.997	0.997
Mean	0.998	0.998	0.998
Repeat - 15			
1	0.997	0.997	0.997
2	0.997	0.998	0.998
3	0.997	0.998	0.997
4	0.999	0.997	0.998
5	1.000	0.999	0.997
6	0.997	0.999	1.000
7	0.997	0.999	0.998
8	0.999	0.998	1.000
9	0.997	0.998	0.998
10	0.998	0.997	1.000
Mean	0.998	0.998	0.998