

**Assignment 4: Use Unsupervised Deep Learning Algorithm to Detect Fraud with PyOD**

<https://github.com/baralsamrat/MSCS633-Assignment-4>

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## Screenshots

```

[15]: f1_loaded = f1_score(y_test, y_test_pred_loaded, zero_division=0)
cm_loaded = confusion_matrix(y_test, y_test_pred_loaded)

print("Loaded Model ROC-AUC: {roc_auc_loaded:.4f}")
print("Loaded Model Precision: {precision_loaded:.4f}")
print("Loaded Model Recall: {recall_loaded:.4f}")
print("Loaded Model F1-score: {f1_loaded:.4f}")

print("Unloaded Model Confusion Matrix:")
print(cm_unloaded)

print("Unloaded Model Classification Report:")
print(classification_report(y_test, y_test_pred_loaded, digits=4, zero_division=0))

```

Loaded Model ROC-AUC: 0.9418  
 Loaded Model Precision: 0.9835  
 Loaded Model Recall: 0.9810  
 Loaded Model F1-score: 0.9469

Loaded Model Confusion Matrix:  
 $\begin{bmatrix} 56754 & 110 \\ 93 & 5 \end{bmatrix}$

	precision	recall	f1-score	support
0	0.9994	0.9981	0.9982	56864
1	0.0435	0.0510	0.0469	98
accuracy	0.5209	0.5245	0.5226	56962
macro avg	0.9967	0.9964	0.9966	56962
weighted avg	0.9967	0.9964	0.9966	56962

