Epoch 1/20

1682/1682 [==============================] - ETA: 0s - loss: 16.7860 - accuracy: 0.50542024-04-16 04:02:41.016108: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 10509312000 exceeds 10% of free system memory.

2024-04-16 04:02:49.484372: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

1682/1682 [==============================] - 896s 528ms/step - loss: 16.7860 - accuracy: 0.5054 - val\_loss: 10.5651 - val\_accuracy: 0.5388 - lr: 1.0000e-05

Epoch 2/20

1682/1682 [==============================] - ETA: 0s - loss: 6.8585 - accuracy: 0.51902024-04-16 04:16:09.253738: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 10509312000 exceeds 10% of free system memory.

2024-04-16 04:16:14.162335: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

1682/1682 [==============================] - 805s 478ms/step - loss: 6.8585 - accuracy: 0.5190 - val\_loss: 4.0740 - val\_accuracy: 0.5493 - lr: 1.0000e-05

Epoch 3/20

1682/1682 [==============================] - ETA: 0s - loss: 2.6330 - accuracy: 0.54822024-04-16 04:29:28.687705: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 10509312000 exceeds 10% of free system memory.

1682/1682 [==============================] - 799s 475ms/step - loss: 2.6330 - accuracy: 0.5482 - val\_loss: 1.6348 - val\_accuracy: 0.5553 - lr: 1.0000e-05

Epoch 4/20

1682/1682 [==============================] - 791s 470ms/step - loss: 1.1971 - accuracy: 0.5739 - val\_loss: 0.9177 - val\_accuracy: 0.5580 - lr: 1.0000e-05

Epoch 5/20

1682/1682 [==============================] - 790s 470ms/step - loss: 0.7891 - accuracy: 0.6011 - val\_loss: 0.7259 - val\_accuracy: 0.5592 - lr: 1.0000e-05

Epoch 6/20

1682/1682 [==============================] - 794s 472ms/step - loss: 0.6716 - accuracy: 0.6266 - val\_loss: 0.6843 - val\_accuracy: 0.5564 - lr: 1.0000e-05

Epoch 7/20

1682/1682 [==============================] - 794s 472ms/step - loss: 0.6323 - accuracy: 0.6496 - val\_loss: 0.6832 - val\_accuracy: 0.5526 - lr: 1.0000e-05

Epoch 8/20

1682/1682 [==============================] - 794s 472ms/step - loss: 0.6106 - accuracy: 0.6701 - val\_loss: 0.6933 - val\_accuracy: 0.5467 - lr: 1.0000e-05

Epoch 9/20

1682/1682 [==============================] - 794s 472ms/step - loss: 0.5922 - accuracy: 0.6883 - val\_loss: 0.7085 - val\_accuracy: 0.5408 - lr: 1.0000e-05

Epoch 10/20

1682/1682 [==============================] - 794s 472ms/step - loss: 0.5742 - accuracy: 0.7043 - val\_loss: 0.7406 - val\_accuracy: 0.5348 - lr: 1.0000e-05

Epoch 11/20

1682/1682 [==============================] - 787s 468ms/step - loss: 0.5563 - accuracy: 0.7184 - val\_loss: 0.7666 - val\_accuracy: 0.5299 - lr: 1.0000e-05

Epoch 12/20

1682/1682 [==============================] - ETA: 0s - loss: 0.5384 - accuracy: 0.7309

Epoch 12: ReduceLROnPlateau reducing learning rate to 5.999999848427251e-06.

1682/1682 [==============================] - 786s 468ms/step - loss: 0.5384 - accuracy: 0.7309 - val\_loss: 0.8010 - val\_accuracy: 0.5268 - lr: 1.0000e-05

2883/2883 [==============================] - 32s 11ms/step

Evaluation Metrics:

Precision: 0.5317

Recall: 0.8767

F1 Score: 0.6619

ROC AUC: 0.6017

PR AUC: 0.5881

MCC: 0.1376

y\_pred = (test\_scores > 0.6).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Confusion Matrix

...: conf\_matrix = confusion\_matrix(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

Evaluation Metrics:

Precision: 0.5501

Recall: 0.5917

F1 Score: 0.5701

ROC AUC: 0.6017

PR AUC: 0.5881

MCC: 0.1081

In [12]: y\_pred = (test\_scores > 0.7).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Confusion Matrix

...: conf\_matrix = confusion\_matrix(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

Evaluation Metrics:

Precision: 0.6459

Recall: 0.0209

F1 Score: 0.0405

ROC AUC: 0.6017

PR AUC: 0.5881

MCC: 0.0375

Εικόνα που περιέχει κείμενο, γράφημα, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, διάγραμμα, γράφημα, στιγμιότυπο οθόνης

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, σχεδίαση

Περιγραφή που δημιουργήθηκε αυτόματα

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Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, οθόνη, ορθογώνιο παραλληλόγραμμο

Περιγραφή που δημιουργήθηκε αυτόματα