Epoch 1/20

1682/1682 [==============================] - 848s 503ms/step - loss: 18.2267 - accuracy: 0.5053 - val\_loss: 12.5220 - val\_accuracy: 0.5587 - lr: 1.0000e-05

Epoch 2/20

1682/1682 [==============================] - 842s 500ms/step - loss: 8.5486 - accuracy: 0.5245 - val\_loss: 5.3630 - val\_accuracy: 0.5998 - lr: 1.0000e-05

Epoch 3/20

1682/1682 [==============================] - 816s 485ms/step - loss: 3.4870 - accuracy: 0.6125 - val\_loss: 2.1185 - val\_accuracy: 0.6529 - lr: 1.0000e-05

Epoch 4/20

1682/1682 [==============================] - 779s 463ms/step - loss: 1.4526 - accuracy: 0.6716 - val\_loss: 1.0120 - val\_accuracy: 0.6494 - lr: 1.0000e-05

Epoch 5/20

1682/1682 [==============================] - 758s 450ms/step - loss: 0.7756 - accuracy: 0.6997 - val\_loss: 0.6600 - val\_accuracy: 0.6609 - lr: 1.0000e-05

Epoch 6/20

1682/1682 [==============================] - 773s 459ms/step - loss: 0.5641 - accuracy: 0.7251 - val\_loss: 0.5858 - val\_accuracy: 0.6499 - lr: 1.0000e-05

Epoch 7/20

1682/1682 [==============================] - 836s 497ms/step - loss: 0.4884 - accuracy: 0.7487 - val\_loss: 0.5970 - val\_accuracy: 0.6330 - lr: 1.0000e-05

Epoch 8/20

1682/1682 [==============================] - 827s 492ms/step - loss: 0.4505 - accuracy: 0.7680 - val\_loss: 0.5881 - val\_accuracy: 0.6396 - lr: 1.0000e-05

Epoch 9/20

1682/1682 [==============================] - 774s 460ms/step - loss: 0.4241 - accuracy: 0.7856 - val\_loss: 0.5988 - val\_accuracy: 0.6370 - lr: 1.0000e-05

Epoch 10/20

1682/1682 [==============================] - 741s 441ms/step - loss: 0.4027 - accuracy: 0.7999 - val\_loss: 0.6311 - val\_accuracy: 0.6305 - lr: 1.0000e-05

Epoch 11/20

1682/1682 [==============================] - ETA: 0s - loss: 0.3839 - accuracy: 0.8129

Epoch 11: ReduceLROnPlateau reducing learning rate to 5.999999848427251e-06.

1682/1682 [==============================] - 741s 441ms/step - loss: 0.3839 - accuracy: 0.8129 - val\_loss: 0.6612 - val\_accuracy: 0.6258 - lr: 1.0000e-05

2883/2883 [==============================] - 27s 9ms/step

Evaluation Metrics:

Precision: 0.6307

Recall: 0.7191

F1 Score: 0.6720

ROC AUC: 0.7639

PR AUC: 0.7977

MCC: 0.3010

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: 0.7263

Recall: 0.5358

F1 Score: 0.6166

ROC AUC: 0.7639

PR AUC: 0.7977

MCC: 0.3460

In [5]: 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: 0.8279

Recall: 0.4493

F1 Score: 0.5825

ROC AUC: 0.7639

PR AUC: 0.7977

MCC: 0.4003

Εικόνα που περιέχει διάγραμμα, γραμμή, κείμενο, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, οθόνη, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, διάγραμμα, γραμμή

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Περιγραφή που δημιουργήθηκε αυτόματα