Epoch 1/5

3363/3363 [==============================] - 8630s 3s/step - loss: 3.3796 - accuracy: 0.8655 - val\_loss: 0.8238 - val\_accuracy: 0.9818 - lr: 5.0000e-05

Epoch 2/5

3363/3363 [==============================] - 8284s 2s/step - loss: 0.3946 - accuracy: 0.9828 - val\_loss: 0.2133 - val\_accuracy: 0.9886 - lr: 5.0000e-05

Epoch 3/5

3363/3363 [==============================] - 8451s 3s/step - loss: 0.1599 - accuracy: 0.9899 - val\_loss: 0.1379 - val\_accuracy: 0.9888 - lr: 5.0000e-05

Epoch 4/5

3363/3363 [==============================] - 8279s 2s/step - loss: 0.1128 - accuracy: 0.9929 - val\_loss: 0.1233 - val\_accuracy: 0.9873 - lr: 5.0000e-05

Epoch 5/5

3363/3363 [==============================] - 8562s 3s/step - loss: 0.0941 - accuracy: 0.9951 - val\_loss: 0.1198 - val\_accuracy: 0.9849 - lr: 5.0000e-05

2883/2883 [==============================] - 335s 116ms/step

Evaluation Metrics:

Precision: 0.9942

Recall: 0.9761

F1 Score: 0.9851

ROC AUC: 0.9990

PR AUC: 0.9990

MCC: 0.9706

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: 0.9949

Recall: 0.9682

F1 Score: 0.9814

ROC AUC: 0.9990

PR AUC: 0.9990

MCC: 0.9637

In [9]: 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: 0.9956

Recall: 0.9576

F1 Score: 0.9762

ROC AUC: 0.9990

PR AUC: 0.9990

MCC: 0.9540

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

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

Περιγραφή που δημιουργήθηκε αυτόματα

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Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/ei\_qna, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/StatisticalData

157/157 [==============================] - 45s 246ms/step

Intercept 0.7031863675786371

Prediction\_local [0.60848318]

Right: 0.2468915

Feature Importances (Coefficients):

Predicate: -0.41680178199255824

Object: 0.23968133434005987

Subject: 0.08241726221451826

Triplet 2 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/hlth\_ehis\_aw1u, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/term, Object: hlth\_ehis\_aw1u

157/157 [==============================] - 40s 252ms/step

Intercept 0.7487339179086381

Prediction\_local [0.26632578]

Right: 0.02671358

Feature Importances (Coefficients):

Object: -0.2867213821665828

Predicate: -0.11272119288225353

Subject: -0.08296555845309155

Triplet 3 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/fats\_08, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/level, Object: 4

157/157 [==============================] - 39s 248ms/step

Intercept 0.6143840706057987

Prediction\_local [0.79002884]

Right: 0.8993788

Feature Importances (Coefficients):

Predicate: 0.39615371153275547

Object: -0.1675018376968258

Subject: -0.053007103587337

Triplet 4 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/paragraph9574\_3455, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/Paragraph

157/157 [==============================] - 40s 257ms/step

Intercept 0.7761414384761416

Prediction\_local [0.53861019]

Right: 0.6000546

Feature Importances (Coefficients):

Predicate: -0.4192671184795696

Object: 0.12489725105215019

Subject: 0.056838614634006614

Triplet 5 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/glossaryArticle118, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/hasReference, Object: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/referenceSource59

157/157 [==============================] - 40s 252ms/step

Intercept 0.49731991507192785

Prediction\_local [1.06121868]

Right: 0.98947513

Feature Importances (Coefficients):

Predicate: 0.3313787570034135

Object: 0.21384334659763118

Subject: 0.018676665177503115