

COMP47750

Machine Learning with Python

Autumn 2025 Assignment 2

Text Classification: AI or Human V2.0

Objective

This is a follow on from the first Assignment. For this assignment you are expected to use text embeddings such as Doc2Vec (Word2Vec) or BERT.

- <https://en.wikipedia.org/wiki/Word2vec>
- [https://en.wikipedia.org/wiki/BERT_\(language_model\)](https://en.wikipedia.org/wiki/BERT_(language_model))

For this assignment you may use GenAI tools for background research and coding.

The labelled training data is available in the file `ai_hum_text.csv` and the test data are in `test_Abst_A.csv` and `test_Abst_B.csv`.

Requirements

1. Evaluate the performance of a number of embedding-based methods and classifiers on this dataset. You should also consider ensemble classifier methods. Use Markup to explain *in your own words* how the embedding methods work. Justify your choice of evaluation criteria.
2. `test_Abst_A.csv` and `test_Abst_B.csv` each contain 1000 test abstracts. Produce estimates of the proportions of these that are AI-generated. What can and can't you confidently conclude from these estimates?

Submission: This is an individual (not group) project. Submission is through the Brightspace page. Your submission should comprise your original notebook as an `ipynb` file and also saved as `html`. Since your notebook will take a while to run you should submit it without clearing the outputs.