

Machine Learning

Assignment 2¹

40% of the module

Due on Sunday 27/04 at 23:59

Task 1 (30%)

You should do a literature review on the following topic:

Soil type identification using satellite images

In this task you should use recent references that address this topic, you will need to compare the various sources and contrast the approaches and the results and finally to reflect on the overall findings.

Submission:

1. Documentation (2-3 pages)

Task 2 (70%)

In this task you will use Deep Learning (DL) to perform a task of your choice (classification, regression, sequence prediction). Your task should involve using a DL model that we studied in this course (MLP, CNN, RNN, ...)

Notes:

- You need to select a dataset that will lend itself to a good understanding.
- The identified problem should be of a real application.
- Chosen dataset should be challenging and still under investigation.

Submission:

1. Python code (notebook) for your working (it should show your outputs)
2. Documentation which should describe all your working, approaches and justifications (use figures, tables, code snippets as appropriate)

Marking scheme:

Data Exploration and Pre-processing	20%	Data analysis/cleaning, handling data quality issues (if any)
Task (classifier, regression, ..) development and testing	40%	Model selection, training, optimisation, and evaluation (including results)
Documentation	40%	It should not exceed 10 pages. It should have introduction with related work, discussion of the data, justification for the chosen model, discussion on developing, training, testing and evaluating the model. Discussion of the results.

¹ Edited by Abubakr Siddig on 18.03.2025