

Deep Learning - WMAI017-05.2023.2A

Assignment 2

Starting date: 8 March 2023
Submission deadline: **23:59, 31 March 2023**, extendable until April 14.

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General guidelines:

- The tasks are targeted at groups of three/four students. Please make sure that the load is well divided: every student should contribute.
- Please take advantage of the practical sessions to ask your questions about the tasks.
- A reviewer should be able to understand plots independently; be sure to label axes, a legend for colors, use an easily readable font size, etc.
- Refer to all plots, tables, code blocks, etc. in your report.
- Please note that you should not use ChatGPT to obtain or include answers for this assignment.
- Submit the report as a PDF file through Brightspace.

Homework Assignment

Learning Objective: The aim of this assignment is for students to learn to use Deep Learning frameworks and to code a small project where they train neural networks for a given task.

Step 1. Each group selects a topic for their projects and writes a short proposal (max 1 page) about what they would like to do. Consider the following information:

- Dataset, task, and model you will use.
- General idea or motivation for the problem.
- Short description of what you will do (train models, use X evaluation metrics, etc)

Some general project ideas are available below:

- Implement and reproduce a research paper.
- Reproduce a figure from a paper (that involves training a network).
- Train a model on a new dataset and provide a correct evaluation.
- Collect some data, possibly label it, and train a model on a task.

Your project must be a coding one and you should train deep neural networks using python DL framework of your choice (tensorflow, keras, pytorch, mxnet, etc).

Consider that the project should take around 40 hours of your time (10 hrs per week for around 4 weeks). Submit the proposal as a PDF file in Brightspace, deadline is latest Monday March 13. You will get feedback and accept/reject within a couple of days. If you have doubts about your project

being accepted before submitting, you can ask the coordinator via email.

Rejection might come because the project is too difficult or might take you much more than the allocated time, and then changes can be made to adapt to requirements.

Step 2. Once your project topic is accepted, start working on your project on your own time and during the practicals. Attend practicals to ask questions to the TA or via email to the coordinator.

Step 3. By the end of the project (current deadline is March 31, flexible deadline until April 14), you should submit two files:

1. A written report (5-10 pages), indicating what you did in your project, results, analysis, to what degree you fulfilled your goal, and include source code as attachments. Any source code you reused from past projects or from the internet can be used but must be properly cited and referenced. It should be clear what is new for this project and what is reused from the internet. This will be 70% of your assignment grade.
2. A 5 minute video presentation and PDF slides, presenting your project, focusing more on what you did and what results you obtained. It is aimed for your student colleagues as audience. This will be 30% of your assignment grade.

Make sure that your report is readable and understandable, and that it contains all necessary details for someone else to reproduce your results. Any use of material should be clearly cited and quoted/referenced, including a paper that you might reproduce.