Assignment 1: Introduction to Deep Convolutional Neural Networks

Start Assignment

Due 25 Aug by 17:00 **Points** 30 **Submitting** a file upload **File types** pdf
Available 24 Jul at 9:00 - 1 Sep at 23:59

Overview

In this assignment, you will explore a real dataset to practice the typical deep learning process. The assignment is designed to help you become more confident in applying deep learning approaches. In this assignment you will:

- Develop a deep learning system to solve a real-world problem.
- Analyse the output of the algorithm(s).
- Research how to extend the DL techniques that are taught in class.
- Provide an ultimate judgement of the final trained model that you would use in a real-world setting.

To complete this assignment, you will require skills and knowledge from lecture and lab material for Weeks 1 to 6 (inclusive). You may find that you will be unable to complete some of the activities until you have completed the relevant lab work. However, you will be able to commence work on some sections. Thus, do the work you can initially, and continue to build in new features as you learn the relevant skills. *A deep learning model cannot be developed within a day or two. Therefore, start early.*

More details and data are available below:

- Assignment 1 specifications: **COSC2779_Assignment1_2350 (1).pdf (https://rmit.instructure.com/courses/107388/files/32675167?wrap=1) (https://rmit.instructure.com/courses/107388/files/32675167/download?download_frd=1)**
- Marking Rubric: **rubric-assignment1.pdf (https://rmit.instructure.com/courses/107388/files/32669110?wrap=1) (https://rmit.instructure.com/courses/107388/files/32669110/download?download_frd=1)**
- Development data: **data-1.zip (https://rmit.instructure.com/courses/107388/files/32669070?wrap=1) (https://rmit.instructure.com/courses/107388/files/32669070/download?download_frd=1)**

- Report template: **student_s123456-1-1.docx (https://rmit.instructure.com/courses/107388/files/32675236?wrap=1)** ↓ **(https://rmit.instructure.com/courses/107388/files/32675236/download?download_frd=1)**
- **Assignment 1 Questions (https://rmit.instructure.com/courses/107388/discussion_topics/1961935)**
- Discussions in lectures: Weeks 2-5

Assignment help & Suggested Schedule

This is an open-ended assignment and you are expected to make your own design choices within the specifications provided to you.

Where to get help:

- For clarifications, you can use the discussion forum **Assignment 1: Discussions and Questions (%24CANVAS_OBJECT_REFERENCE%24/discussion_topics/g9f7b031e9aa9562f0d421e50ac416536)** .
- During the lectorial and lab sessions, we will spend around 15 minutes discussing the assignment. The lab session is an excellent place to get individualized help with the assignment.
- Each week we will have extra help sessions (announced on the course MS team page). If you have any questions on the assignments please join them and we can help you.

Suggested Schedule:

We expect that you will start the assignment immediately and follow a schedule similar to the one shown below. Do not fall behind, *A deep learning model cannot be developed within a day or two.*

- **Week 2-3**: Read the specification and familiarize yourself with the problem. Explore the data set and the task. Identify biases and ethical issues and start writing the report.
- **Week 4**: Design the experiments. Develop the data loading mechanism. Search relevant literature and read. Start writing the report.
- **Week 5**: Develop the model - design, and train. Do model analysis. Update the report.
- **Week 6**: Do model analysis. Update the report. Submission!

Submission Details

Please read this carefully before submission.

You'll need to submit three things:

- **Data agreement,** in pdf format
- **Your report**, in pdf format
- **Your code** zipped to a zip file including all support scripts.

Canvas does not allow to have multiple file upload per assignment. To get around this, you'll see there are multiple assignment 1 pages.

1. ***The data agreement*** *(https://rmit.instructure.com/courses/107388/assignments/821001)* - where you submit the signed agreement form (provided with data).
2. ***This page*** *(https://rmit.instructure.com/courses/107388/assignments/820997)* - Where you will submit your report (as a PDF). This runs Turnitin, and will not accept zip files, so please only submit your report here.
3. **The** (https://rmit.instructure.com/courses/107388/assignments/820996) ***code*** *(https://rmit.instructure.com/courses/107388/assignments/820996)* - *submission* page where you submit your Jupyter Notebooks, python scripts, all related code files (as a ZIP)

Remember not to leave it to the last minute to submit your assignment.

Important Dates & Notes

Weight: 30% of the final course mark
Specification Released: Week 2
Due Date: 17:00, Friday 25th August 2023 (online submission)
Learning Outcomes: This assignment contributes to **CLOs** (https://rmit.instructure.com/courses/107388/pages/welcome-to-deep-learning-course-information-and-outline) : 1, 2, 3 & 4