

Coursework 2 – Application of Deep Learning Techniques

Brief

This is a group coursework: please work in teams of four people.

Due date: Tuesday 6th May, 16:00

Handin: <https://handin.ecs.soton.ac.uk/handin/2425/COMP6252/2>

Required files: report.pdf and code.zip

Credit: 30% of overall module mark

Overview

Deep learning has been used in lots of fields and applications, with great performance. The goal of this assignment is to apply deep learning techniques on a practical problem.

Details

Data

Choose the problem and data to work on for example from:

- **Kaggle:** [//www.kaggle.com/](https://www.kaggle.com/)
- **Grand Challenges:** <https://grand-challenge.org/challenges/>
- **UK Biobank:** <https://www.ukbiobank.ac.uk/>

Deep learning technologies

You should try to develop/implement the best deep learning methods you can.

Code

You are free to choose the programming language you like.

The report

The report must be no longer than **5 pages** (4 pages main content + 1 page reference) of A4 with the given Latex format, and must be submitted electronically as a PDF. The report must include:

- Your name and ECS user ID.
- A description of the data and problem, with data visualisation and reflection.
- A description of the implementation of the deep learning methods used.
- The validation of the deep learning methods on the data and problem.
- A discussion regarding the results obtained.
- We expect your report is written at a high standard academic level (i.e., the format and level at published top conferences in deep learning technologies).

What to hand in

You are required to submit the following items to ECS Handin:

- Your 5-page report (as a PDF document in the CVPR format; max 5 A4 pages, no appendix).
- Your code enclosed in a zip file.

Marking and feedback

You will receive a grade out of 30 for this coursework. Marks will be awarded for:

- Successful completion of the task.
- Evidence of understanding.
- Well structured and commented code.
- Evidence of professionalism in the implementation and reporting.
- Quality and contents of the report.
- The quality/soundness/complexity of the deep learning approaches.

Standard ECS late submission penalties apply.

Individual feedback will be given covering the above points

Useful links

- Module COMP6252 website:
<https://secure.ecs.soton.ac.uk/module/2223/COMP6252/43095/>
- Jupyter notebook:
<https://docs.jupyter.org/en/latest/>
- <https://data-flair.training/blogs/deep-learning-project-ideas/>
- <https://machinelearningprojects.net/deep-learning-projects/>

Questions

If you have any problems/questions, use the Q&A channel on Teams, or email Zhiwu, Hikmat and Xiaohao.