

COMP5329 - Deep Learning

Assignment-2

Due: 8-June-2018 7:00 p.m. (Week 13)

Assignment-2 has two tracks: **competition track** and **research track**.

Students should attend one of the two tracks. 2 or 3 students are suggested to form a group to attend the competition track, while 1 or 2 students are suggested to form a group to attend the research track.

1. Competition track description [20 Marks]:

To achieve the best classification performance as you can. Dataset can be found on Canvas.

You can use any methods in deep learning to accomplish the classification task. You must guarantee that the submitted codes are self-complete, and can be successfully run in common python3 and **TensorFlow** environment.

The performance of your algorithms will be evaluated in terms of the accuracy metric, i.e.

$$\text{accuracy} = \frac{\text{number of correct classifications}}{\text{total number of test examples}} * 100\%$$

Groups participating in this track will be ranked according to their classification performance on the test set.

Test data will be released at **5pm on 8 June 2018**, and you must submit the predicted labels of test data before **7pm on 8 June 2018**.

Marking scheme

Category	Criterion	Marks	Comments
Report [8]	Introduction [1] - What's the aim of the study? - Why is the study important?		

	Techniques [2] - The principle of different techniques		
	Experiments and results [3] - Accuracy - Extensive analysis		
	Conclusions and Discussion [1] - Meaningful conclusion and discussion.		
	Other [1] - At the discretion of the marker: for impressing the marker, excelling expectation, etc. Examples include fast code, using LATEX, etc.		
Techniques [5]	Techniques highlighted in the deep learning solution, and their necessity, and effectiveness.		
Code [2]	Code runs within a feasible time [1]		
	Well organized, commented and documented [1]		
Classification performance [5]	Groups in top 20% [1] Groups in top 40% [1] Groups in top 60% [1] Groups in top 80% [1] Initial marks [1] -If you are ranked in top 20%, you will get 25 marks.		
Penalties [-]	Badly written code: [-4]		
	Not including instructions on		

	how to run your code: [-6]		
	Late submission: [-1] for each day late		

Instructions to hand in the assignment

1.1 Go to Canvas and upload the following files/folders compressed together as a zip file

a) Report (a pdf file)

The report should include each member's details (student ID and name)

b) Code (a folder)

i. Algorithm (a sub-folder)

Your code (could be multiple files or a project)

ii. Input (a sub-folder)

Empty. Please do NOT include the dataset in the zip file as they are too large.

iii. Output (a sub-folder)

"test.txt" – This file contains the predicted labels of test examples and must follow the same format as file 'vali.txt'. We will use this file for grading.

If you work as a group, only one student needs to submit the zip file which must be named as student ID numbers of all group members separated by underscores. E.g. "xxxxxxxx_xxxxxxxxx_xxxxxxxxx.zip"

1.2 Your submission should include the report and the code. A plagiarism checker will be used. Clearly provide instructions on how to run your code in the appendix of the report.

1.3 The report must clearly show (i) details of your modules, (ii) the predicted results from your classifier on test examples, (iii) run-time, and (iv) hardware and software specifications of the computer that you used for performance evaluations.

1.4 There is no special format to follow for the report but please make it as clear as possible and similar to a research paper.

1.5 A penalty of MINUS 1 (one) points per each day after the due date. Maximum delay is 7 (seven) days, after that assignments will not be accepted.

1.6 Remember, the due date to submit them on Canvas is 8-June-2018, 7:00PM

2. Research track description [25 Marks]:

This research track calls for brave new ideas on deep learning. In this track, you are encouraged to propose and investigate new algorithms or problems in deep learning.

You must not use the project (e.g. your capstone or SSP project) that you have already done or are currently doing in other units to participate in this track.

10 groups will be selected to participate in this track. 5 of the total quota will be allocated on a ‘first come, first served’ basis, i.e. the first 5 applications will be directly accepted for this track. The remaining 5 of the total quota will be allocated by considering the novelty and feasibility of applications.

If you are interested in this research track, you should submit an extended abstract (up to one page) to highlight the importance and novelty of your research problem, the major idea of your candidate solution, the feasibility of the proposed research, and the expected experimental achievements (if applicable).

Please send your abstract to TAs and cc c.xu@sydney.edu.au before **30-April-2018, 23:59**.

Marking scheme

Category	Criterion	Marks	Comments
Report [17]	Introduction [3] - What is the research problem? - Why this research problem is important. - What is your major idea to solve this problem?		
	Related works [2] -The related works on this research problem.		

	Techniques [5] - The technical details of your proposed solution.		
	Experiments and results [4] - Comparison algorithms - Experimental tables and figures - Analysis on the proposed solution.		
	Conclusions and Discussion [2] - Meaningful conclusion and discussion.		
	Other [1] - Report structure, presentation, literature review, format, etc.		
Novelty [5]	The novelty of the proposed solution.		
Experiments [3]	Include related existing algorithms in comparison experiments.		
Presentation in class [5 bonus]	If there are some satisfying achievements, a presentation in class (week 13) is encouraged.		
Penalties [-]	Late submission: [-1] for each day late		

Submit the report and source codes in experiments on Canvas before the due date **8-June-2018**.

If you have any question about the assignment, please contact:

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