



COMP338 – Computer Vision – Assignment 2

- This assignment is worth 15% of the total mark for COMP338
- Students will do the assignment individually.

Submission Instructions

- Send all solutions as a single PDF document containing your answers, results, and discussion of the results. Attach the source code for the programming problems as separate files (e.g., python or *.ipynb), and compress the codes into one zip file.
- Each student will make a single submission to the Canvas system.
- **The deadline for this assignment 12/12/2024, 5:00pm**
- Penalties for late submission apply in accordance with departmental policy as set out in the student handbook, which can be found at
<http://intranet.csc.liv.ac.uk/student/msc-handbook.pdf>
and the University Code of Practice on Assessment, found at
https://www.liverpool.ac.uk/media/livacuk/tqsd/code-of-practice-on-assessment/code_of_practice_on_assessment.pdf

Image Classification with Deep Models

In this project, we will do image classification using the **Cifar100** dataset. The lab “*COMP338_Lab_08_Fashion_MNIST_Classification.ipynb*” on Canvas shows the example source code, you can refer it.

Tasks:

1. (30 marks) Design a deep neural network for image classification.
2. (30 marks) Train and test your network on **Cifar100** dataset.
3. (40 marks) Write a report to clearly explain your network, the intuition behind your design, and discussion of your results.

Rules:

- You can refer to any papers and reuse any source code. However, you should clearly cite the references in your report.
- Use free Google Colab account (<https://colab.research.google.com/>) for training. The maximum training time on a free Google Colab account is 12 hours.
- You can choose one existing model as your baseline model, then you can add some novel modules or training strategies to improve the performance step by step.

Our solution will be evaluated by:

- Why do you choose this model as baseline, please explain your reasons? (15%)
- The overall design concept or novelty of your network design (20%).
- How you can improve the model step by step, and how to verify your concept? (some comparisons) (40%).
- The completeness of your report (25%).

Notes:

1. We recommend using simpler baseline models to avoid excessively long training times.
2. Designing and verifying experiments are crucial aspects of this assignment.
3. Incorporating concepts discussed in our lectures is encouraged.
4. Please add all your references into the reference section.