Direct Reading and Literature Review (20 marks)

With the advance of deep learning, we have witnessed significant progress in a wide spectrum of computer vision techniques in image segmentation (e.g. semantic segmentation, instance segmentation, panoptic segmentation), image classification, object detection (e.g. two-stage object detection, one-stage object detection, anchor-free object detection, few-shot object detection, etc.), image generation (e.g. image synthesis from noise, image composition, image-to-image translation, image editing). To address various challenges in these computer vision problems, we also witnessed the fast development of machine learning techniques in supervised learning, semi-supervised learning, weakly supervised learning, self-supervised learning, few-shot learning, unsupervised learning, transfer learning, unsupervised domain adaptation, etc.

This direct reading aims to equip you with capabilities of reading scientific papers in computer vision. You are expected to select one paper of the above listed topics (or beyond the list as far as the paper is related to computer vision), and produce a paper reading report that should at least address the following points:

1. what is the work about?
2. what are gaps of prior research works?
3. what are motivations of the performed research?
4. how does the proposed technique address the gaps?
5. what evaluation metrics were adopted to validate the designs?
6. what are constraints of the proposed technique?
7. what are possible future works?
8. ……

The report will be evaluated based on its contents and presentation. For contents, you're expected to work out the report independently and the report should reflect your understanding of the selected paper. For presentation, the report should have good clarity, logical flow, elegance, etc.

You need to submit your report in PDF format. There are no standard report templates, and there is no requirement of specific report length (e.g. how many pages) either.

Please submit your report through NTULearn before the submission deadline on Oct 1st 2024, and there will be penalty for late submissions.