ENGN8536 Research Assignment / Literature review Guidelines

Abstract

The assignment this year requires you to look deeply into the research literature of this field from recent years. The first three parts are a structured examination of recent developments, whereas Part 4 requires you to do a novel investigation into a source and follow-up paper. This document gives you a view of what is required for different levels of grade in this assignment. Please note that this is not a precise marking guide, but is a broad breakdown of what we are looking for in the assignment. Note that particularly Part 4 of this assignment is quite open-ended in that you are asked to choose and investigate a direction of your choice. High marks will be awarded for deep insightful reading of this literature. Note that this document is derived from the ENGN8501 Research Project Guidelines by Dylan Campbell, and from the Project marking guide but with numerous changes to be specific for a literature assignment, so please read it carefully.

1   Part 4 (50% in total)

This part asks you to find your own follow-up paper(s) and identify improvements across a thread of literature, placing it in the broader context of the Deep Learning For Computer Vision Literature.

The best place to start is to look at the proceedings of a recent (2017–20) top-tier computer vision conference (e.g. CVPR, ICCV, ECCV, and parts of NeurIPS and SIGGRAPH) for interesting new developments that you would like to investigate. Many proceedings can be found for free online, such as at `http://openaccess.thecvf.com`, or through the library. Choose a paper that interests you and consider whether you could extend or improve the work, apply one of the ideas to a different problem, or use it as inspiration. It can be helpful to look at the code (if available) to get a concrete view of their method. You will need to highlight in your report and presentation what improvements or extensions you made, or where you obtained your ideas or inspiration.

Note that this is different from your Project. This question should not be the main topic of your project (it can be thread). If this were the main topic of your project you need to inform us, and note that you would have to do something extra because you have already submitted this.

2   Accessibility

Please be mindful to communicate your research in a way that is accessible to as many people as possible. Keep your sentences short and clear unless there is a pressing need. Ensure your figures are large enough to be legible and easily interpreted. Importantly, **do not rely on colour** to, for example, distinguish between lines in a plot. I am colour blind and will not be able to interpret your results. Instead, use symbols, line styles or labels to further disambiguate your plots. (Sometimes this is not possible. For example, the results of an image colourisation algorithm cannot be made more accessible to those with colour blindness.)

3 Result Levels

Outstanding An outstanding literature would require novel investigation of existing work. It would need to draw together newly published papers and discuss their connection and how they improve upon and do not improve upon the existing works. What are the strengths and weaknesses and what still remains to be done. This analysis would need to be beyond what currently appears in the literature. There must be something exceptional. Perhaps it points out important differences between the paper and implementation, or a difference in the way the idea is used that hasn't been noted. This would indicate new possible directions for the field of deep learning for computer vision, and would synthasize this idea accross multiple papers.

Good To be a good assignment it needs to be a thorough review, that draws out the key features of the papers, investigates in a novel direction, but perhaps does not draw novel conclusions. It is an entirely solid review that makes the path through the literature clear. It would draw the ideas into a broader context of the field of deep learning for computer vision.

Satisfactory A satisfactory assignment would still cover the new paper, but would only report what was in the papers, and the connections between them without going beyond this. It would be a correct and accurate summary, but would not make novel conclusions, or integrate this idea into a broader context in the field of deep learning for computer vision.

Pass To be a pass for this assignment requires a baseline paper and a new paper that the student has found that does connect the ideas. It would require for that idea to be identified and to be correct, but may have some flaws in the argument.

Poor A poor assignment would not show insight into the literature, or fail to make the appropriate connections of the key features.

3.1 Report

Please note that the discussion below mostly address Part 4 (ie., for 10 of the 20 overall marks) - but this is also relevant to parts 1-3.

Category	Indicative criteria	Mark
Presentation	• Consistent and appropriate formatting • Correct spelling and grammar • Adheres to page limit (2 pages + references) • Uses LaTeX template • Symbols and acronyms defined • Consistent use of terminology, clear definitions • Proper use of sections and logical structure • Appropriate referencing and bibliography • Figures, tables and captions are clear and properly integrated into the text • Written for a technically knowledgeable, non-expert audience	/5
Background material, Discussion and future directions	• Appropriate choice of new novel paper(s). • Correct connection of a key insight of the papers. • Presents a succinct and accurate description of the progress of the key idea(s). • Appropriate background material to place the innovation in context, and in the context of the broader literature. • Suitable review and critical analysis of relevant technical literature. • Clear distinction between the background materials and your own analysis of them • The conclusions of the work are clearly discussed. • Suggestions for further work are clearly presented.	/15
Total		/20