Planning and Writing a Critical Review

Current Topics

The following are some general guidelines on writing a **critical review** of an article and are used here to help you prepare for your mid-semester assignment.

1. What is a critical review?

A critical review (sometimes called a critique or critical appraisal) is a detailed summary on, and critical evaluation of a given piece of work, often published scientific articles. You might carry out a critical review as a stand-alone exercise, or as part of your research and preparation for writing a literature review. The following guidelines are designed to help you **critically evaluate** a research article.

2. What is meant by critical?

To be critical does not mean to criticise in an exclusively negative manner. To be critical of a published article means you question the information and opinions in the text, in an attempt to evaluate or judge its worth overall.

3. What is meant by evaluation?

An evaluation is an assessment of the strengths and weaknesses of a published article. This should relate to specific criteria, in the case of a research article. You must understand the purpose of each section and be aware of the type of information and evidence that are needed to make it convincing, before you can judge its overall value to the research article as a whole.
Each section of a research article has a particular job to do in the article. You need to be clear what each section is meant to do before you can weigh up how effectively it actually does it.

4. Preparing and writing the review

1. Read through the entire article, getting a general idea of the research aims, methods and results. There will likely be some aspects you do not immediately understand. You might be lacking background on some of the concepts the article relies on. If this is the case, don't be discouraged. This is normal. Try to follow the references and use the search engine of your choice to learn about the puzzle pieces you are missing. Google Scholar is a brilliant tool that can help you navigate network of articles. But there are also other resources out there that might be more easily accessible, such as blog entries, Wikipedia or explainer videos and lectures. You do not have to understand each and every detail about the paper, but **you have to make an effort to understand the gist**. This is essential. The goal is to get to a level of understanding that would allow you to have a brief conversation with someone to explain to them what the paper is about and how the method works.

2. After you believe you have a rough understanding, consider the following questions:
   - What are the main aims and findings?
   - What methodology has been used?
   - Is the research clearly laid out?
   - Are the results clearly presented?

3. Work through each section in detail, using the criteria provided above, and make brief notes.
   - Are there particular strengths and limitations in each section?
     - Why? Explain your thinking. You may need some evidence to support your view; for example, if you think that a sample of 3 datasets seemed quite small, you should try to find a similar study that has used more, to cite as a comparison.

4. Review some of the literature in this field. Start by looking at some of the key papers cited, and then use Google to see if you can find other papers on similar topics. You don't have to read all these papers in detail, but look at their abstracts, and formulate an idea of the research context.

5. General considerations

It is useful to plan out each section of your review as a short list, or bullet points, so that you can see that you have included everything.

You should point out the strengths of the study to show you are aware of their importance, as in:

- 'These results are consistent with the aims of the research…'
- 'The findings are clearly presented using diagrams and a graph…'
- 'The discussion consistently relates the key findings to research discussed earlier…'

When you identify weaknesses, you should use a cautious, objective style. You can use such phrases as:

- 'This sample seems fairly small in view of…'
- 'It might have been helpful to provide more details of…'
- 'There is no explanation for the absence of any literature after 2003. It would have been useful to know why this was the case.'

Critical analysis improves with practice – any reading and thinking you do as part of your course will help you develop this skill. Do note that the above are general guidelines.

The text you write must be the expression of your own thoughts in your own words.

- Do not start writing by copying text from the paper or other sources into your text.
- You are only allowed to paste text if you put it in quotation using "..." and provide the proper reference.
- Formulate what you want to say yourself.

6. The structure of your review

The following sections should be used in your assignment:

- **Summary:** What is the paper about, what problem does it try to address? How does it approach the problem? What does the paper present in terms of results, their conclusions and contributions to the science? (20 Marks)
- **Relation to other work:** How does it fit into other published works in this field (you will need to find other related papers that you find to complete this part)? What does it contribute additionally beyond previous works? (20 Marks)
- **Strengths of the paper:** What do you like about the paper? What stands out as being significant? Which of these points are the most important strengths? What was presented well? You can point so specific sections, figures or equations. (10 Marks)
- **Weaknesses of the paper:** What don't you like about the paper? Were there any significant gaps in what has been presented? Are there aspects that have not be presented well? Which of the problems are the most significant? You can point so specific sections, figures or equations. (10 Marks)
- **Potential advancement and future work**: (20 marks)
  - (for MSc AICS and MSc DS students) Based on your literature search above, what could have been done to make the work more substantial? How would you recommend the work to continue on this topic? What alternative approaches, analysis and testing would you recommend?

- (for MSc AIML students) Based on your literature search above, wider reading and your in-depth understanding of AI/ML, what could have been done to make the work more substantial? How would you recommend the work to continue on this topic? What alternative approaches, analysis and testing would you recommend? (MSc AIML students are expected to demonstrate a stronger in-depth understanding of the AI/ML area in their answer.)

7. Format

In addition to the above notes, your submitted assignment should follow the below guidance:

- Aim for 800 words (excluding references)
- The limit is 1200 words (including references), or 2 pages (A4)
- Use margins (top/bottom/sides) of 2 cm
- Use Arial font of size 11
- Write your Programme Name (e.g., MSc AICS, MSc DS, or MSc AIML) in the header