Reviewing Literature

In advance on this class, you should all have read a paper that is relevant to your project.

The exercises in this practical (and the questions) are largely based on material from the Writing For Computer Science [1] book which I **strongly recommend** you all read.

Task 1: Create a Summary

Write a paragraph to summarise your paper, being sure to include answers to the following questions:

1. What are the researchers trying to find out?
2. What do the researchers argue to justify that this research is important?
3. What was measured?
4. What were the results?
5. What do the authors conclude and to what factors do they attribute their findings?

Conclude your summary with an additional sentence or two, which explicitly states why this paper is (or is not) interesting and relevant to you at this point in time.

I would **strongly** advise writing summaries of this nature for every paper you read.

(Even if you decide that you do not need to read the main body of the paper in detail as it is not sufficiently interesting. Your project's aims and objectives may alter in ways that this paper becomes interesting and you want to be able to locate it easily. Summaries for all papers where you have read the Introduction & Conclusion will help.)

Swap your summary with your neighbour and ask them to read and critique it. Can they answer all of the questions above from your summary?

Task 2: Critiquing the Paper

When it comes to critiquing papers there are two separate aspects we can consider – style and substance.

Critiquing the Style

Authors write papers to communicate the details of their research to other academics. If a paper has poor style (i.e. it is not written well) the substance of the paper is obscured and the research is not clearly communicated. When this occurs, good quality and interesting research can become hidden. Scientists need to learn how to write well so that their interesting research is understood.

Therefore, the first critique you are going to perform is of the **style** of the paper. Answer the following questions (for some questions you may want to annotate your copy of the paper):

1. Was it easy or difficult to create your summary of this paper in Task 1?
    a. If it was **easy**, this implies that the paper was fairly well written. Can you identify what made the paper easy to understand?
    b. If it was **difficult**, this implies that the paper was not well written. Can you identify what made the paper hard to understand?
2. Does the paper have a good structure?
    a. Do the main sections follow a logical order?
    b. Do the sub-sections follow a logical order?
    c. Is scaffolding used to link the sections together?
3. How carefully has the paper been edited?
    a. Did you find any inconsistencies, misspellings or grammatical errors?
    b. When reading the paper, did you have to read any of the sentences multiple times in order to correctly parse the information? If so, highlight these sentences in the paper and identify what made it hard for you to read.
    c. If you did not find you had to reread sentences to understand the meaning, then why is this?
4. Are there any aspects of the presentation that could be improved?
    a. Are all figures, tables and equations referred to in the text?
    b. Can you understand the meaning of all figures, tables and equations?
5. Does the content justify the length of the paper?

It is probably not necessary to critique the style of every paper that you read (this is not something that will form part of your report). However, identifying why some things are hard to read will help you with your own writing skills. So, if you do come across a paper that is difficult to understand and you think it might be due to poor writing style, take a few minutes to identify why the paper is hard to read.

Critiquing the Substance

When it comes to substance, you can find that good writing style actually obscures poor substance. A paper that is really well written can persuade the reader that the work itself is of a high quality, when actually it is not.

Now that you've critiqued the style of the paper, you should move on to critiquing the substance of the research, by answering the following questions:

1. Has the right background literature been discussed? Does it help you to understand the research aims and objectives? Is there anything missing from the Literature Review?
2. How carefully are the algorithms and experiments described?
3. How were the measurements taken? Are the measurement techniques reasonable? (Note: if you are looking at an HCI paper, there are specific experimental design critiques that should be considered here. Revise HACS!)
4. Are all the technical details correct? Are they sensible?
5. How precise are the claims in the paper?
6. Are you provided with sufficient information to be able to replicate the research?
7. Are the proposals and results critically analysed?
8. Can you accept the findings of the paper as true? Discuss any failings or sort comings of the method used to support the findings. Does the paper itself acknowledge any of these limitations?
9. Are appropriate conclusions drawn from the results or are there other possible interpretations?
10. Are there any serious ambiguities or inconsistencies?
11. Is anything missing? Is anything irrelevant?
12. Is there a contribution? Is it significant?

Task 3: Referee's Report

This task is optional, but I think a fairly good exercise. If you would rather read and critique a different paper (i.e. Tasks 1&2 for a different paper), then that is perfectly okay.

Now that you have critiqued the paper, I want you to imagine that you have received the paper as a reviewer and write a reviewers report of the paper. Obviously, the paper you are looking at has been accepted (as it is a published piece of work). But, do you agree with that?

The following notes, taken directly from [1] should help you write your referee's report.

"When you recommend that a paper be accepted, you should do the following:

- Convince yourself that it has no serious defects.
- Convince the editor that it is of an acceptable standard, by explaining it is original, valid and clear.
- List the changes, major and minor, that should be made before it appears in print, and where possible help the author by indication not just what to change but what to change it to (but if there are excessive numbers of errors of some kind, you may want to give a few examples and recommend that the paper be proof read).
- Take reasonable care in checking details such as mathematics, formulas, and the bibliography.

When you recommend that a paper be rejected, or recommend that it be resubmitted after major changes, you should do the following:

- Give a clear explanation of the faults and, where possible, discuss how they could be rectified.
- Indicate which parts of the work are of value and which should be discarded, that is, discuss what you believe the contribution to be.
- Check the paper to a reasonable level of detail, unless it is unusually sloppy or ill-thought.

In either case you should do the following:

- Provide good references with which the author should be familiar.
- Ask yourself whether your comments are fair, specific and polite.
- Be honest about your limitations as a referee of that paper.
- Check you review as carefully as you would check one of your own papers prior to submission." [1]

References

[1] J. Zobel, *Writing for Computer Science*: Springer, 2004.