Research of performance difference between convolutional neural network and human vision and optimization strategy

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Opposition for group: 4

1 Directions

Keep in mind that your feedback is essential to each of these other group(s), as your feedback will enable them to improve their report and guide them as to issues to raise in their oral presentation. Providing and receiving feedback is an *essential* part of your participation in the course.

When you upload your opposition report into Canvas, the filename of your opposition report should be of the form:

opponent's_name-Opposition-for-*group_number*-YYYYMMDD

Where the date in the filename is the data that you submit this written opposition.

2   Review questions and your answers

Address each of the review questions (RQs) below:

RQ. 1   Critique the organization, structure, and layout of the report

> Me personally wouldn't have structured the report exactly like this even thus the template suggests it. I had a really hard time understanding the purpose and goal of the work when reading the theoretical framework/literature study, especially since that's also missing from the abstract. As said, this is how the template was designed. But me personally would have written an introduction to the problem area, background, problem, purpose, and goal **before** diving into the theoretical framework. Currently, the reader is quite clueless about the purpose of the work. The research questions help a bit explaining this, but since they are located after the literature study they are not bringing clarity to what the literature study is about.

RQ. 2   Critique the abstract

> Abstract does not in a clear way state the goal and purpose of the work. The goal is to research if neural networks have similar vision feature index as normal human vision, that should be stated in abstract. Moreover, no results, findings, or conclusions are presented in the abstract. The only thing that is mentioned is that results will be presented, but not what they are. Also, the method used comes after 'results' are mentioned, which is a bit weird.

RQ. 3   Critique the literature study

> The literature study in general is good, me as an outsider of the field just have a hard time grasping it, but that's maybe more of my problem. However, the section containing the research questions is a bit unclear. I'd prefer a list and numbering of the research questions. By doing this it gets clearer for the reader and you can easier refer back to a specific question. Also, I argue it's a bit weird to start describing the methodology in this section, you can simply leave this out or move it. Make the section clearer.

RQ. 4   Critique the method (or methods) used

> The authors do refer to one reference in the methodology section. However, more references can be added, for example a reference to the Thatcher effect, MatConvNet library, the different neural networks used. I'd also suggests elaborating a bit on how you interpret the results, what makes the results show that neural networks work like human vision? I don't really get that.

RQ. 5   Critique the results and analysis

> I think that the Results section is one of the best sections in this report, you explain the results in detail and what they mean. Section 3.3 should begin with capitalized letter. If the paper is to be read by readers outside of the field of AI I think it could be good to have one sentence in each subsection summarizing the results in more simple terms. Lastly, it can be good adding that you're going to discuss certain aspects of the results in the Discussion section. The results section may also in a more clear way answer the research question, for example like "Figure x shows that 'research question y' is correct". In other words, try to be very clear about how the results answers the research questions. You don't need to go into the depth of it and discuss things, just a simple sentence is enough. As of now, I've to either remember the research questions or go back to that section to refresh my memory to be able to draw any conclusions from the results section.

RQ. 6 Critique the discussion

> I don't understand the first paragraph (first two sentences) of the discussion, this should be clarified. I'm not able to find any mentions of how the results of your work answers the research questions, maybe its between the lines but I'd clarify this. From my understanding, you have the following research questions; *What is the difference between these two index and what does this difference reveal? What method can we use to strengthen or weaken the difference?* Nowhere in the report am I able to find a clear answer to these two questions. Maybe you should adjust or change your research questions to fit your conclusion.

RQ. 7 Critique the conclusions: Are they relevant, meaningful, and follow from the discussion? Who should act based upon these conclusions, and what should they do?

> First of all, there is no separate section for conclusion, which I argue there should be in a scientific paper for improved clarity. However, the conclusion in the discussion section is stating what the research questions said, which is good. Despite this, I do think that the conclusion can be extended to include things such as things stated in the discussion as well as clarify the findings and the answer to your research questions.

RQ. 8 Critique the planned future work (if any)

> The suggestions of future work is fairly limited, personally I'm not able to grasp what the future research should focus on. I'd suggest adding one or two sentences regarding this matter to make it easier for future researchers.

RQ. 9 Are the references appropriate, complete, and used correctly? Are there any missing references?

> Some citations are located in the middle of sentences, I don't know what's correct but I use to put them at the end of the sentence, like this [1]. Some references are fairly old, one from 1977 and one 1980. This may be a bit too old for the sources to be viewed as relevant, try backing them up with more recent sources. Also, some references are incomplete, for example the first reference.

RQ. 10 Now is the time to identify anything false, incorrect, misleading, or unclear. What issues did you find?

> The findings of the work is in my opinion unclear, maybe it's because of my limited knowledge in the field but I do argue this can be greatly clarified upon on.

A   Additional detailed comments

Every section should start with a capitalized letter, which all sections do not. Some sentences start directly after punctuation without space in-between , example "...end of sentence.Start of next sentence...".