KTH Electrical Engineering

Electric Power Systems Lab

EG201X DEGREE PROJECT IN ELECTRIC POWER SYSTEMS

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Exercise

Reflection and Critical Assessment

According to the course objectives, degree project students should learn to reflect on, evaluate and critically analyse their own work as well as the work of others. In this exercise, you will be given instructions on how to make a critical review of a master thesis. You will then practice this on an already published master thesis.

Background

Being able to evaluate and critically assess one's own and others' scientific results is an important skill for modern engineers—in particular for those who wants to proceed as researchers after their master degree. Evaluation and critical assessment can be performed either as a written review or in a direct discussion. In this exercise, you will train your skill to write a critical review.

The objective of a critical review is to provide relevant feedback concerning the methods used and the obtained results. As a reviewer, you should have a critical point of view of what you are reading, but you should remember that all criticism does not have to be negative—if you see something that you like, do not hesitate to give the authors appropriate appreciation. On the other hand, if you find shortcomings in the thesis, you should of course point them out, but you should still keep your review polite. For example, instead of accusing someone of presenting an incorrect solution, you can suggest that the author might have done a mistake. (Remember, that it is also possible that you as a reviewer is misunderstanding the thesis.)

The review may consider overall, principal questions (for example which conclusions can be drawn from the work) and factual matters (for example if a certain method has been applied correctly or if appropriate input data have been used). The review must of course be adjusted to the reviewer's knowledge within the concerned topic—if it is a new area for the reviewer then it is reasonable if the review has a focus on principal issues.

A review can be structured in any way the reviewer find appropriate. Below follows a structure that you can use as a starting point.

Summary

A short summary of the main points of the thesis, as perceived by the reviewer. The intention of the summary is to show the author that you have understood the thesis and thus convince him or her that your review is relevant.

General qualities

For natural reasons, the major part of a critical review will focus on needs for improvement of the thesis. However, it is both polite and constructive to give some general comments on the qualities of the thesis, because the author is more likely to respond to your comments if you show that you also appreciated the work. For example, you could say that the topic is interesting and important or that the thesis is educational.

Questions and suggestions

This is the main part of the review, where you discuss specific questions that you have about the thesis, and there you suggest changes. In a written review, it is convenient to number your comments, so that the author can refer to the numbers if he or she is replying to your review.

There are a lot of questions that can be asked during a review. Here follow a few examples:

- **Background.** How well is the essential problem of the work described? Is the aim of the project clear? Are the objectives of the technical report described? Which limitations are there in the project (i.e., which problems will *not* be addressed in the report)?
- **Methods and models.** Do you understand which methods and models that have been used? Are there any errors or possible mistakes in the methods or models? Are the chosen methods and models the most appropriate or could the problem have been addressed in some other way? Are there any improvements that could have been done? Are there any other applications?
- **Case studies.** Is the background of the case studies described? Is it clear how the computations of the case studies have been performed? Are all inputs and assumptions presented? Should other input values have been used or is there a need for a sensitivity analysis? Are the results presented in a good way?
- **Conclusions.** How could the results of the project be applied in reality? Is there support for all conclusions that are presented? Are there any other ways to interpret the results? Is there a need for further development of methods and models? Is there a need for more case studies?
- **Presentation.** Does the report follow the instructions for thesis writing? Can you find all the mandatory sections of a thesis? Is the technical report easy to read or are there shortcomings in language usage or structure? Are figures and tables legible?

Instructions

As preparation for this exercise, you should read the instructions for writing a master thesis in electric power systems (if you have not already done that). The instructions are available on the course web page. Moreover, you should read the advice for critical review given above.

The assignment itself is straightforward. Go to the course web page and select "Exercises" in the menu. Go to the Reflection and Critical Assessment exercise. In the menu on the right hand side of this web page you can find the instructions (i.e., this document) and an example thesis. Read the example thesis, and write a critical review of that thesis. The review should be about two A4 pages (using normal font size and line spacing). Submit your review to your supervisor and discuss it in a telephone meeting or a direct meeting. If possible, several students can meet in a seminar and have a group discussion of their observations together with a KTH teacher.