**KTH Computer Science
and Communication**

Kerstin Frenckner, tel 08–790 9754, e-mail:. kfrenck@csc.kth.se2   February 12, 2009

OPPOSITION FOR MASTER'S PROJECT

The duties of an opponent are to:

- Critically review the report in question

- Pay particular attention to the problem approach, the methodology chosen and to the interpretation/evaluation of results

- Make annotations on the report of clerical errors, other minor errors, incomprehensible or ambiguous text

- Complete this Opponent Record (use a computer or black ink)

- In advance – at the time stipulated – give this record to the persons stipulated in the instructions for your exjobb subject.

- Orally present your general opinion of and comments on the work during about 5 minutes after the author's presentation of the work

- Put questions to the author of the report following his/her presentation: you may put forward the questions set down in the Opponent Record, or some of these questions, but it is also reasonable to expect the presentation to generate new questions.

- Give the Opponent Record and the annotated report to the author at the conclusion of the seminar

You may contact the person responsible for the degree project, e.g. to test programs.

The Opponent Record can be completed either using a computer or manually. If writing by hand, use red or black ink and write distinctly. The Record copies must be legible but not necessarily aesthetically pleasing.

Master's projects vary considerably. Consequently, at times not all of the questions will be relevant to the project you are opposing. It can be appropriate to rephrase the questions to fit the project. You may also introduce one or two additional questions.

Attempt to answer the questions in the Opponent Record in relative detail. Answers such as **Yes** and **Good** are insufficient.

OPPONENT RECORD

Thesis compiled by: OSKAR SEGERSVÄRD & DENNIS SÅNGBERG

Title of thesis: Classifying Multivariate Electrocorticographic
Signal Patterns from different sessions

Opponent: Mattias Folke

Was it easy to understand the underlying purpose of the project? Comments.

Yes, I believe that section 1.3 Purpose clarified everything very well. The writers could mention the on-going debate in the Purpose section as well though, since I understand it's a big underlying reason. However I had a hard time to figure out what question they tried to answer in the beginning.

Do you consider that the report title justly reflects the contents of the report?

Yes, it's a good title in my opinion.

How did the author describe the project background? Was there an introduction and general survey of this area?

The background was all placed under a single heading and could had been split into lesser parts. One the other hand it was quite easy to follow and very informative as well as a good description of new concepts.

To what degree did the author justify his/her choice of method of tackling the problem?

They justify their method quite well by motivating the use of a two-class problem due to its simplicity, which indicates an understanding of the time limit of this project. Also while reading the report I do read in between the lines that they have put quite a lot of thought regarding their choice of evaluation method, and the use of n-fold cross validation seams legit for the purpose.

Did the author discuss the extent to which the prerequisites for the application of such a method are fulfilled?

They did not discuss the prerequisites, but since the datasets that were used came from participants who had been given two different tasks it seems as a reasonable usage.

Is the method adequately described?

The different methods used trough out the authors work are generally described in a good way. I was a little confused by the mentioning of how some parts were implemented where it were left out in other parts.

Has the author set out his/her results clearly and concisely?

In my opinion a few of the results as well as some parts that would fit better under the discussion have ended up in the method section. Example of things that I believe is a result is Figure 2.1, 2.2 and 2.3 which describes at what point different methods prove the best results. Figure 2.4, 2.5 and 2.6 however is what I believe as a great use of figures in the method part.

I also think that the meaning of the results could be described better to guide the reader with understanding which methods preformed well in different steps in the results. The discussion part is good and the authors successfully describe the important aspects.

Do you consider the author's conclusions to be credible?

I think that the conclusion is very good. It's short and easy to read but at the same time it pinpoints the most important aspects of the report. Since nothing all to controversial were introduced I believe that the conclusions were credible and quite well motivated.

What is your opinion of the bibliography? What types of literature are included? Do you feel they are relevant?

The bibliography feels very good. A lot of the sources have been published which is good for credibility. Even though I didn't look up all sources in close the ones I did as well as looking at all the titles; the bibliography seam good and they feels relevant.

Which sections of the report were difficult to understand?

I thought the filtered and wrapper methods were quite hard to follow due to the lack of explanatory figures. Also I never quite figured out the how the different feature selection algorithms were used with different classifiers, something I assume is a quite big part of the report.

Other comments on the report and its structure.

At first I reacted to the choice of using … later on I realised that they had changed their use of tenses. The report could also have benefited by having a longer introduction and a shorter method by extracting some of the information that were more generally informative.

From the introduction:

"The focus of this report will be on selection of relevant features and classification of ECoG signals."

From the method description:

"We implemented a select few of the currently available algorithms."

What are the stronger features of the work/report?

It's very good in presenting mathematical formulas that is being used and the work has got a very serious approach. Many areas have been touched in the work and it feels like they have went in depth in the subject and have a good conclusion part of the text.

What are the weaker features of the work/report?

The structure could have been better. I would also have liked if the entire report were written in presence as well as reducing the use of the word *we* throughout the report. I also missed a clear hypothesis, what would have been a success in your eyes? This is what is said in the conclusions first part:

The hypothesis that inter-session unsimilarities in ECoG data would not be a big

problem was not supported by the results of this study. The method combinations

showed a decrease in classification accuracy of up to 20%, a decrease that we were

unable to reduce further

You never stated what results would indicate that it wasn't a big problem.

What is your estimation of the news value of the work?

I'm afraid I don't believe that there is a great news value in the fact the ECoG doesn't diverse from the similar method EGG.

Summarize the work in a few lines.

A Brain-Computer Interface report that tried to settle if the intersession problem that is well known in Electroencephalography (EGG) also exists in Electrocorticography (ECoG). This is have been examined with both linear and nonlinear calcification methods and the result were that the intersession problem did exist for ECoG as well.

Questions to author:

1. Why do you believe that ensemble didn't work better than it did? Does the different method "guess wrong" at the same items?

2. "It would be interesting to compare other types of the available algorithms, but this was not done due to the time constraints." (2.1) Are there any other popular and do you believe that these good have influenced your results a lot?

3. If someone with the same time limit as you have had should continue with your research, with what work would you like to see them enhance your work?

4.

5.

6.