



Review report of a final thesis

Student: Bc. Laura Klimešová
Reviewer: Ing. Jakub Žitný
Thesis title: Facial landmarks detection for the purpose of automated speech therapy
Branch of the study: Knowledge Engineering

Date: 26. 1. 2021

<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 4.</i>
1. Fulfilment of the assignment	1 = assignment fulfilled, 2 = assignment fulfilled with minor objections, 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled
<i>Criteria description:</i> Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.	
<i>Comments:</i> The selected assignment is hard and all parts have been fulfilled.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
2. Main written part	90 (A)
<i>Criteria description:</i> Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies? Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 26/2017, Art. 3. Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.	
<i>Comments:</i> The written part is solid - language, literature, explanations, etc. it all makes sense together. It is self-contained and there are no unnecessary sections. In the analysis part, I am missing some written elaboration on the comparison of deep learning methods for landmarks detection. Also, pinpointing the pros and cons of the mentioned architectures would be interesting. Analysing the CNNs in section 3.2 could be more in-depth as well.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
3. Non-written part, attachments	80 (B)
<i>Criteria description:</i> Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.	
<i>Comments:</i> Attached code covers the implementation part, but there are no scripts or snippets to reproduce the analysis from section 3.1. There is also an example notebook that showcases the implementation part, but it's not very pleasant to work with it - it's mostly just copied and pasted code into notebook cells.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
4. Evaluation of results, publication outputs and awards	90 (A)
<i>Criteria description:</i> Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.	
<i>Comments:</i> The results are impressive, combining the image acquisition to the actual results in video shows that the student understands the whole pipeline to solve a difficult task such as the one in this assignment. Linked example videos show that the methods work properly.	
<i>Evaluation criterion:</i>	<i>No evaluation scale.</i>

5. Questions for the defence

Criteria description:

Formulate questions that the student should answer during the Presentation and defence of the FT in front of the SFE Committee (use a bullet list).

Questions:

1. There is a possibility to use CNNs for tongue tip localization (tongue gestures and tip coordinates). Which CNN architectures could be used, and how large would the dataset need to be to train them? Are there any similar tasks/data where we could pre-train the networks? Has there been any other research on this topic besides the reference 66?

Evaluation criterion:

The evaluation scale: 0 to 100 points (grade A to F).

6. The overall evaluation

90 (A)

Criteria description:

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.

Comments:

The thesis is easy to read, author explains all parts of the project. Attached code shows that the results are not made up and we can see that there was a lot of effort put into the work. However, there are small bits that could be explored more in-depth.

Signature of the reviewer: