



Review report of a final thesis

Student: Bc. Ondřej Novák
Reviewer: Ing. Martin Kopp
Thesis title: Learning Convolutional Neural Networks for Age Estimation
Branch of the study: Knowledge Engineering

Date: 28. 5. 2018

<p><i>Evaluation criterion:</i></p> <p>1. Difficulty and other comments on the assignment</p>	<p><i>The evaluation scale: 1 to 5.</i></p> <p>1 = extremely challenging assignment, 2 = rather difficult assignment, 3 = assignment of average difficulty, 4 = easier, but still sufficient assignment, 5 = insufficient assignment</p>
<p><i>Criteria description:</i> Characterize this final thesis in detail and its relationships to previous or current projects. Comment what is difficult about this thesis (in case of a more difficult thesis, you may overlook some shortcomings that you would not in case of an easy assignment, and on the contrary, with an easy assignment those shortcomings should be evaluated more strictly.)</p> <p><i>Comments:</i> The topic of this thesis was ambitiously set to extend the current state of the art in the age and gender recognition from an image. Due to its ambition I would say its rather challenging topic.</p>	
<p><i>Evaluation criterion:</i></p> <p>2. Fulfilment of the assignment</p>	<p><i>The evaluation scale: 1 to 4.</i></p> <p>1 = assignment fulfilled, 2 = assignment fulfilled with minor objections, 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled</p>
<p><i>Criteria description:</i> Assess whether the thesis meets the assignment statement. In Comments indicate parts of the assignment that have not been fulfilled, completely or partially, or extensions of the thesis beyond the original assignment. If the assignment was not completely fulfilled, try to assess the importance, impact, and possibly also the reason of the insufficiencies.</p> <p><i>Comments:</i> The database of more than 200k annotated human images was created, so the first part was fulfilled. The presented machine learning approach of age and gender recognition is a bit simple and I missed the promised leverage of weak labels.</p>	
<p><i>Evaluation criterion:</i></p> <p>3. Size of the main written part</p>	<p><i>The evaluation scale: 1 to 4.</i></p> <p>1 = meets the criteria, 2 = meets the criteria with minor objections, 3 = meets the criteria with major objections, 4 = does not meet the criteria</p>
<p><i>Criteria description:</i> Evaluate the adequacy of the extent of the final thesis, considering its content and the size of the written part, i.e. that all parts of the thesis are rich on information and the text does not contain unnecessary parts.</p> <p><i>Comments:</i> Most notable outcome of the thesis is the database of annotated images, together with the machine learning solution. Therefore, the length of the thesis shouldn't be a serious issue. That being said, I need to also note that the thesis is extremely short with conclusion on page 39.</p>	
<p><i>Evaluation criterion:</i></p> <p>4. Factual and logical level of the thesis</p>	<p><i>The evaluation scale: 0 to 100 points (grade A to F).</i></p> <p>30 (F)</p>
<p><i>Criteria description:</i> Assess whether the thesis is correct as to the facts or if there are factual errors and inaccuracies. Evaluate further the logical structure of the thesis, links among the chapters, and the comprehensibility of the text for a reader.</p> <p><i>Comments:</i> The thesis is terribly written. It is really hard to follow and understand. Especially first chapter is no go. The reading is further complicated by a huge amount of nested parentheses. Second and third chapters are better but still hard to read and follow. Introduction is not an introduction but rather overview of existing datasets for age and gender estimation.</p>	
<p><i>Evaluation criterion:</i></p> <p>5. Formal level of the thesis</p>	<p><i>The evaluation scale: 0 to 100 points (grade A to F).</i></p> <p>20 (F)</p>

Criteria description:

Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspects, see Dean's Directive No. 26/2017, Article 3.

Comments:

From the typographical and language point of view, the thesis is also really bad. It contains a huge amount of grammatical errors, typos, mistakes and incomplete sentences.

Also it is a first work about image recognition and CNNs I've ever seen that does not contain even a single equation or an image.

Evaluation criterion:

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

6. Bibliography

50 (E)

Criteria description:

Evaluate the student's activity in acquisition and use of studying materials in his thesis. Characterize the choice of the sources. Discuss whether the student used all relevant sources, or whether he tried to solve problems that were already solved. Verify that all elements taken from other sources are properly differentiated from his own results and contributions. Comment if there was a possible violation of the citation ethics and if the bibliographical references are complete and in compliance with citation standards.

Comments:

Cited works are in many cases state of the art in the particular domain. But the thesis still contains errors and unfilled citations and references such as: "is discussed in ??", [ref], [link] etc. It is the most obvious in the beginning of the second chapter.

Evaluation criterion:

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

7. Evaluation of results, publication outputs and awards

95 (A)

Criteria description:

Comment on the achieved level of major results of the thesis and indicate whether the main results of the thesis extend published state-of-the-art results and/or bring completely new findings. Assess the quality and functionality of hardware or software solutions. Alternatively, evaluate whether the software or source code that was not created by the student himself was used in accordance with the license terms and copyright. Comment on possible publication output or awards related to the thesis.

Comments:

The database of annotated images is unique and large enough to become the state of the art dataset for the age and gender estimation from images. The presented machine learning solution is simple but was well tested.

Evaluation criterion:

No evaluation scale.

8. Applicability of the results

Criteria description:

Indicate the potential of using the results of the thesis in practice.

Comments:

above.

Evaluation criterion:

No evaluation scale.

9. Questions for the defence

Criteria description:

Formulate any question(s) that the student should answer to the committee during the defence (use a bullet list).

Questions:

Rather not.

Evaluation criterion:

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

10. The overall evaluation

50 (E)

Criteria description:

Summarize the parts of the thesis that had major impact on your evaluation. The overall evaluation **does not** have to be the arithmetic mean or any other formula with the values from the previous evaluation criteria 1 to 9.

Comments:

The thesis is terribly written, hard to read and contains a lot of grammatical errors and is extremely short. It does not contain any equations describing the presented machine learning solution or any images like scheme of the used neural network or any examples from dataset. From that being said I would let the student to rewrite the thesis.

On the other hand the main achievement is the database and not the text and the database would be the excellent benchmark for age and gender estimation for next couple of years. Therefore, I classify this thesis by grade E.

Signature of the reviewer: