



Supervisor's statement of a final thesis

Student: Pavel Hlubík
Supervisor: MSc. Juan Pablo Maldonado Lopez, Ph.D.
Thesis title: Posilování učení a neuronové sítě pro extrakce znalostí z textu
Branch of the study: Knowledge Engineering

Date: 18. 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> Text summarization is one of the hot areas in machine learning right now. Our focus was on extractive summarization rather than abstractive (i.e. select relevant information instead of rewriting it) the assignment was not easy. Additionally, we wanted to explore the performance of RL algorithms for text classification. There are many well established algorithms in practice (Naive Bayes being perhaps the most used in industry); our goal was to determine if a RL-based algorithm could perform comparably in terms of speed with Naive Bayes, but with higher precision.</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 spirit of the assignment was fulfilled. Many questions remain opened, but unfortunately we did not have time to try many other methods. This is because training of RL algorithms is quite time consuming without proper resources (GPUs).</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> The content and the size of the written part are suitable for a bachelor work.</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>90 (A)</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 text does not assume familiarity with neither NLP nor RL, only working knowledge of machine learning.</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>90 (A)</p>
<p><i>Criteria description:</i> Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspects, see Dean's Directive No. 26/2017, Article 3.</p>	

Comments:

The language and style of the thesis reflects the standard in the ML community

Evaluation criterion:

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

6. Bibliography

90 (A)

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:

Pavel used all relevant sources and gave his own twist to the models presented in those papers.

Evaluation criterion:

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

7. Evaluation of results, publication outputs and awards

90 (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:

At this stage, the results do not fully settle the question we had on the beginning, due partly to the hardware limitations. However, a significant engineering effort was put to develop the simulation environments needed for training the algorithms. The results can be improved, given sufficient time, and could be worthy of publication.

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:

The results in their present form have limited applicability, but the foundations are ready.

Evaluation criterion:

The evaluation scale: 1 to 5.

9. Activity and self-reliance of the student

9a:

1 = excellent activity,

2 = very good activity,

3 = average activity,

4 = weaker, but still sufficient activity,

5 = insufficient activity

9b:

1 = excellent self-reliance,

2 = very good self-reliance,

3 = average self-reliance,

4 = weaker, but still sufficient self-reliance,

5 = insufficient self-reliance.

Criteria description:

Review student's activity while working on this final thesis, student's punctuality when meeting the deadlines and consulting continuously and also, student's preparedness for these consultations. Furthermore, review student's independency.

Comments:

Pavel was managing me more than I was managing him. I appreciate that he took the initiative more than once, and he did not hesitate to prove me wrong. He was able to look at scientific papers without being intimidated and have critical, well-founded opinions about their content. The level of maturity and independence shown is well above that of the average bachelor student.

Evaluation criterion:

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

10. The overall evaluation

90 (A)

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:

I am satisfied with the work, considering this is a hard, largely open problem. Regrettably, the time was not enough to improve on the results, which I believe could have been published.

Signature of the supervisor: