



Review report of a final thesis

Student: Artem Ustynov
Reviewer: Ing. Michal Štepanovský, Ph.D.
Thesis title: Documents classification using machine learning methods
Branch of the study: Computer Science

Date: 12. 6. 2020

<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> This thesis meets all the guidelines given in the assignment of bachelor's thesis.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
2. Main written part	75 (C)
<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 thesis has a clear organization and it is easy to follow. Provided text is adequate to the topic. However, to my opinion, Chapter 4 is too short and contains few typographical errors. The thesis includes figures that help reader to compare obtained results. Nevertheless, there is an inconsistency in the presentation of obtained results. Specifically, figures 3.6, 3.9, 3.13, etc. provide results for four tags (technical, scientific, documentation, manuals), however, later figures 3.19, 3.20, etc. provide just results for one tag (technical). I suppose that all presented methods were compared based on the MMC score for the tag "technical". To my opinion, we can expect slightly different results for other tags. Thus, the presented analysis could be slightly misleading. Chapter 5 presents no information about which method was used (BERT-base?, LSTM?,...). In overall, thesis contain few typographical errors (missing commas, etc.) what makes thesis harder to read, but the meaning is still clear. All references are properly cited.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
3. Non-written part, attachments	90 (A)
<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> Non-written part consists of set of programs/scripts used to analyze and compare all methods. Student has used Python as the main programming language, except for Semaphore where Java was used. The overall quality of the program is adequate.	
<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	100 (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.	

Comments:

This thesis provides a valuable analysis for the problem of the classification of uncategorized documents. Thus, results of this thesis have high potential and could be deployed in practice.

Evaluation criterion:

No evaluation scale.

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. Why MMC score is not evaluated for some BERT-based methods (tags: scientific, documentation, manuals)?
2. Please compare pros and cons of "LSTM with text stemming" and "BERT-base after extending data set manually (balanced)".

Evaluation criterion:

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

6. The overall evaluation

85 (B)

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:

My final evaluation is B - very good.

Signature of the reviewer: