

Review report of a final thesis

Czech Technical University in Prague

Faculty of Information Technology

Student: Bc. Adam Léhar
Reviewer: Ing. Jan Baier
Thesis title: Effective implementation of state-of-the-art variants of the ACB compression method for the ExCom library
Branch of the study: System Programming

Date: 5. 6. 2016

<p><i>Evaluation criterion:</i></p> <p>1. Difficulty and other comments on the 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 main task of this thesis is an improvement of existing method.</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>Evaluation criterion:</i></p> <p>2. Fulfilment of the assignment</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> Assignment fulfilled</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>Evaluation criterion:</i></p> <p>3. Size of the main written part</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> I consider the provided information adequate. All parts are covered. The thesis does not contain unnecessary details.</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>Evaluation criterion:</i></p> <p>4. Factual and logical level of the thesis</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 well structured. All needed terms are defined and described. Provided information is correct.</p>	<p><i>The evaluation scale: 0 to 100 points (grade A to F).</i></p> <p>85 (B)</p>
<p><i>Evaluation criterion:</i></p> <p>5. Formal level of the thesis</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. 12/2014, Article 3.</p> <p><i>Comments:</i> There are minor defects in typography, mainly incorrect hyphen usage. The thesis contains some minor grammar issues. However, the author's thoughts are clear to understand.</p>	<p><i>The evaluation scale: 0 to 100 points (grade A to F).</i></p> <p>60 (D)</p>
<p><i>Evaluation criterion:</i></p> <p>6. Bibliography</p> <p><i>Criteria description:</i> 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.</p> <p><i>Comments:</i> There is a low number of good-quality items in the bibliography. However, I consider this acceptable due to selected topic.</p>	<p><i>The evaluation scale: 0 to 100 points (grade A to F).</i></p> <p>75 (C)</p>

<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
7. Evaluation of results, publication outputs and awards	75 (C)
<i>Criteria description:</i> 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.	
<i>Comments:</i> It not clear that the new algorithms provides improvement in compression ratio or compression speed. The author provides a new implementation of existing algorithm and new data structures which can be reused.	
<i>Evaluation criterion:</i>	<i>No evaluation scale.</i>
8. Applicability of the results	
<i>Criteria description:</i> Indicate the potential of using the results of the thesis in practice.	
<i>Comments:</i> This thesis enhances the ExCom library and enables additional improvement.	
<i>Evaluation criterion:</i>	<i>No evaluation scale.</i>
9. Questions for the defence	
<i>Criteria description:</i> Formulate any question(s) that the student should answer to the committee during the defence (use a bullet list).	
<i>Questions:</i> * What do you think is the main reason your implementation is slower than the original one? (Co je podle Vás hlavní důvod, proč je Vaše implementace pomalejší než ta původní?)	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
10. The overall evaluation	80 (B)
<i>Criteria description:</i> 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.	
<i>Comments:</i> This thesis provides theoretical overview of the ACB compression method, explains the implementation and shows some techniques to improve the method.	

Signature of the reviewer: