

# Review report of a final thesis

Czech Technical University in Prague

Faculty of Information Technology

**Student:** Bc. Jan Beran  
**Reviewer:** Ing. Tomáš Hégr  
**Thesis title:** Car-to-Infrastructure Communication in the Context of Intelligent Traffic Intersections  
**Branch of the study:** Computer Security

**Date:** 4. 1. 2017

<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 5.</i>
<b>1. Difficulty and other comments on the assignment</b>	<i>1 = extremely challenging assignment, 2 = rather difficult assignment, <b>3 = assignment of average difficulty,</b> 4 = easier, but still sufficient assignment, 5 = insufficient assignment</i>
<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.)	
<i>Comments:</i> Although the topic of the thesis is related to problems of a future traffic infrastructure, its difficulty throughout the text does not pose an extremely challenging research task. It rather shows how to use proprietary concepts and contemporary tools to solve limited area of future problems, and this is why I find the topic average in its difficulty.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 4.</i>
<b>2. Fulfilment of the assignment</b>	<i><b>1 = assignment fulfilled,</b> 2 = assignment fulfilled with minor objections, 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled</i>
<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.	
<i>Comments:</i> All tasks have been fulfilled.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 4.</i>
<b>3. Size of the main written part</b>	<i>1 = meets the criteria, <b>2 = meets the criteria with minor objections,</b> 3 = meets the criteria with major objections, 4 = does not meet the criteria</i>
<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.	
<i>Comments:</i> While I appreciate the detailed description in most cases, the length of the written part is quite extensive from my perspective.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>4. Factual and logical level of the thesis</b>	<i>90 (A)</i>
<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.	
<i>Comments:</i> The thesis is very well structured and provides surprisingly readable insight into the presented topic. I have found only a few imperfections. In the case of Figure 3.1., I would suggest using standardized UML deployment diagram to express the presented architecture and functional connections. In chapter 2.2.2, I am not aware of any conceptual model where server connects to a client. There is most likely a typo in the Introduction chapter at Level 1 description since the author refers there to Level 2.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>5. Formal level of the thesis</b>	<i>100 (A)</i>
<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.	
<i>Comments:</i> I was unable to identify any significant mistakes. The author provides with a great level of English.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>6. Bibliography</b>	<i>90 (A)</i>

*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:*

Even though the bibliography is rather extensive, I miss more research papers on this topic.

*Evaluation criterion:*

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

**7. Evaluation of results, publication outputs and awards**

85 (B)

*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:*

I appreciate author's approach to evaluating the algorithms in both ways, via real-life application testing and emulation. However, the number of testing sites is not significant and should be higher to prove the application usability. The analysis of obtained results is acceptable. The only ambiguity is how a virtual intersection was synchronized with the real semaphore phase.

*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 research done in the thesis has a high potential to be implemented in some revision to future car systems.

*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:*

What was the source of the DREAD ratings at all threats identified in the thesis for both GLOSA system and GreenLight perimeters?

How was the data for a virtual intersection synchronized with the real semaphore phase during the application evaluation?

*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:*

The thesis fulfills all requirements for the master thesis. The author evidently invested a significant amount of effort to meet each task in the assignment providing a comprehensive description of the topic. The formal level of the thesis is excellent. I recommend the thesis for defense, and I propose evaluation "excellent" (A).

Signature of the reviewer: