Review report of a final thesis

Czech Technical University in Prague **Faculty of Information Technology**

Student:	Bc. Tatyana Aubekerova
Reviewer:	Ing. Jan Kubr
Thesis title:	Decision Making and Construction of Trust in Ad-Hoc Networks Using Neural Networks
Branch of the study:	Computer Systems and Networks

Date: 27. 1. 2017

Evaluation criterion:	*The evaluation scale: 1 to 5.*
1. Difficulty and other comments on the assignment	*1 = extremely challenging assignment,* *2 = rather difficult assignment,* ***3 = assignment of average difficulty,*** *4 = easier, but still sufficient assignment,* *5 = insufficient assignment*

Criteria description:
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.)

Comments:
I consider the assignment of average difficulty.

Evaluation criterion:	*The evaluation scale: 1 to 4.*
2. Fulfilment of the assignment	*1 = assignment fulfilled,* ***2 = assignment fulfilled with minor objections,*** *3 = assignment fulfilled with major objections,* *4 = assignment not fulfilled*

Criteria description:
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.

Comments:
The assignment fulfills the requirements with minor objections. Some of the questions asked in the requirements (which types of neural networks are suited for this work, result assessment in real sensor networks) are not enough presented and assessed.

Evaluation criterion:	*The evaluation scale: 1 to 4.*
3. Size of the main written part	*1 = meets the criteria,* ***2 = meets the criteria with minor objections,*** *3 = meets the criteria with major objections,* *4 = does not meet the criteria*

Criteria description:
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.

Comments:
The size of the work corresponds to the expected level for a diploma thesis. All the parts of the thesis are necessary in the overall document. Some chapters could have been richer in information.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
4. Factual and logical level of the thesis	*70 (C)*

Criteria description:
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.

Comments:
The most important impediment is the insufficient interconnection between the training data (chapter 4.4) and the creation of data instances (chapter 3.1). What I claim is the formal definition of the data structures.

I do not agree with the theorem regarding the graph connectivity on page 23. It is trivial to find a disconnected (partitioned) graph in which each vertex has at least one neighbor.

It is not clear from the work if the units of measurement in tables 5.7, 5.8, 5.9 and 5.11 are different from the other tables or it is a mistake.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
5. Formal level of the thesis	*89 (B)*

Criteria description:
Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspect s, see Dean's Directive No. 14/2015, Article 3.

Comments:
The Czech abstract is not a proper translation into the Czech language. It is good that the student chose English to write the thesis.

References can be written in the middle of the sentence (before the full stop).

Reference (3) on page 25 is not clear at the first sight if it is a reference to external literature or a reference to a chapter.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
6. Bibliography	*100 (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:
The work is rich in sources and the literature is properly quoted.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
7. Evaluation of results, publication outputs and awards	*75 (C)*

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 obtained data is very interesting and can be used in future research. The results are negatively influenced by the written part of the text.

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 obtained data is very interesting and can be used in future research. In relation to the uncertainties and mistakes in the text it is maybe necessary to reassess the data results.

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:
Are there any other methods for trust establishment, without the use of neural networks? What are their results?

Why did the student choose for the experiments neural network with 5 hidden neurons and 2000 epochs (chapter 5.1.4)? How is this related to the results in tables 5.1 and 5.2?

What is the structure of the learning data?

Which types of neural networks are suited for trust assessment In sensor networks?

Are the data from the work usable for real sensor networks?

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
10. The overall evaluation	*75 (C)*

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 entire work is very interesting. The results are negatively influenced by the written part of the text. My personal opinion is that the author performed and excellent work for the analytical and coding parts of the project and ran out of time when doing the written part.

Signature of the reviewer: