TECHNICKÁ UNIVERZITA V LIBERCI
Fakulta mechatroniky, informatiky
a mezioborových studií

DIPLOMA THESIS EVALUATION
OPPONENT EVALUATION

Authorname: Radek Pujman
Opponent: Prof. Worlitz, Frank
Thesis title: Implementation of methods of state diagnosis in an existing software applicatioon for active magnetic bearings

A. Abstract quality, keywords matching	Excellent (1)
B. Research scope and processing	Excellent (1)
C. Level of theoretical part	Excellent minus (1-)
D. Appropriateness of the methods	Excellent (1)
E. Results elaboration and discussion	Excellent minus (1-)
F. Students own contribution	Excellent (1)
G. The conclusion statement	Excellent (1)
H. Fulfillment of Thesis tasks (goals)	Fulfiled
I. Structure, correctness and fulness of references	Excellent (1)
J. Typographical and language level	Excellent (1)
K. Formal quality (text structure, chapters order, clarity of illustrations)	Excellent (1)

Comments, remarks

The topic of this scope of work is the further development of an existing client-server-system that manage and observe active magnetic bearings ("maglap++").
For that purpose the known methods of state diagnosis should be implemented on the server-side by the help of the programming language "C++". Furthermore the source code and the necessary interfaces should be documented with program flow charts.
The user interface (client) should be realised as an application for an Android system. For that there is to develop a suitable app by the help of the programming language "Java". The focus must be taken to an intuitive handling and an attractive design.

A very excellent work on a high scientific level.

...cont. on page 2

Overall assessment:

The work is a very good contribution for the further using of inherent signals of magnetic bearings for diagnosis tasks. The Student showed that he has the ability to solve tasks with high relation to the praxis on an high level. The master Thesis is one of the best if not the best master thesis in the last time.
Form, as well as content is excellent. I am not surprised but very happy about this result.
Even, because the results are useful for the further Work on the field of magnetic bearing.
It is also necessary to mention, Mr. Pujman has succeeded to become familiar with the subject magnetic bearings in a short time. Sure for the part diagnosis he had a good input with the thesis of Dr. Gärtner, but the thesis is firstly written in German and secondly it is not so easy to understand all algorithm and methods which were used. From this point of view it is also a nice performance.
Of course Mr. Pujman is not a Computer Scientist and a computer scientist would write the algorithm in an more efficient form, but the programs are working and were verified by help of the experimental data of the magnetic bearing test facility.

Questions for the defense:

1. What are applications for AMB and what are the main reasons for that?
2. What is the main task of diagnosis for AMB and what is the target or could be the target?
3. What is the reason to use fuzzy logic for diagnosis? Are there advantages and which disadvantages do you see?
4. Where did you get the knowledge for the creating of membership functions?
5. What about the fuzzification? Do you need the defuzzification?
6. Can you say something about the speed of the algorithm? How fast is the diagnosis? What influences the speed mostly?

Overall classification:

Work meets the Master degree requirements and therefore I recommend it for defense

I suggest to classify this work by grade Excellent (1)

In Zittau

date 25 11 2015

By signing I certify that I am not in any personal relationship with the author of the thesis

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Opponent signature