Supervisor's statement of a final thesis

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

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Supervisor:	doc. Ing. Carlos Humberto Granja, Ph.D.
Thesis title:	Graphical display of radiation data of spacecraft payload SATRAM/Timepix
Branch of the study:	Computer Science

Date: 10. 6. 2016

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:
The subject of the Bc Thesis (BcP) devoted to data exploitation and display of results from a novel instrument in a novel and highly interdisciplinary field with high complexity (space research, experimental nuclear physics, radiation spectrometry, geophysics, space weather). The extent and character of the data were large and new, being provided by an entirely novel scientific instrument (designed by the UTEF CVUT team of the BcP supervisor). Several tasks had to be solved by the student in a creative and pro-active approach. Most of the work including the display of the results are entirely new namely for such a miniaturized instrument equipped with state-of-the-art technology (Pixel detector Timepix) in the field.

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 goals and tasks were accomplished. I would highlight that the student promptly became familiar with the tasks solving them creatively and pro-actively. He managed the initial challenge of exploiting and displaying the information provided by an advanced instrument in one field of research (nuclear physics, radiation spectrometry) into entirely other (space research, geophysics). The use of computing principles and specialized techniques was fundamental and most valuable for the task.

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 extent and content of the BcP and its parts are proportional and adequate.

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

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 BcP is properly structured and well written, chapters and sections are efficiently organized and natural sequence. Specialized description of the fields of application or market-target domains - (radiation effects in spacecraft components, radiation shielding/protection for spacecrews, space weather, geophysics) of the research performed and work of the BcP included in the form of appendices. Figures are numbered and listed included references and descriptions in the text. Articles and bibliography are cited and properly listed.

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

Comments:

The formalism and algorithms used are corrected and advantageous for the required tasks. The data and information displayed are properly conveyed. Also the chosen graphical layouts and formatting are efficient and suitable. Also the overall style and formatting of the BcP including the English level are very good. The work performed, content and level well fulfill and even surpass the requirements of Bc theses.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
6. Bibliography	*100 (A)*

Comments:

Articles and bibliography were properly selected and cited in the text and are listed. They included namely scientific articles and academic/technical manuscripts and textbooks as well as works available in electronic form. The sources were uses as reference of methodology/algorithms applied (e.g. Earth map display style/formatting) or as description of specific subjects of applications (see item 4. above).

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

Comments:

The work performed and results achieved fulfill the goals with necessary and high level in terms of content, extent and style. The quality and content/information in the results are adequate for use in the expert community, also for presentation in scientific conferences and publication in conference report and scientific articles. The produced display graphics as well as the SW tool was designed and fully coded and developed by the student. The SW application properly and fully works fulfilling and performing the expected functions, it is equipped with a high level of functionality, fast response, and efficiency and user-friendly approach. The SW code and application are made available for the scientific/user community with free access and no license restrictions.

Evaluation criterion:	*No evaluation scale.*
8. Applicability of the results	

Comments:

The results and output of the BcP are already being used in practise (by the supervisor and his team - in the display of evaluated and extensive data).

Evaluation criterion:	*The evaluation scale: 1 to 5.*
9. Activity and self-reliance of the student	*9a:* ***1 = excellent activity,*** *2 = very good activity,* *3 = average activity,* *4 = weaker, but still sufficient activity,* *5 = insufficient activity* *9b:* ***1 = excellent self-reliance,*** *2 = very good self-reliance,* *3 = average self-reliance,* *4 = weaker, but still sufficient self-reliance,* *5 = insufficient self-reliance.*

Comments:

The student showed utmost activity with initiative and independent approach. We held several consultations in person and also communication by email and phone. He was quick to grasp the requirements and formulation of the tasks. He reported regularly and made gradual and steady progress throughout the whole period.

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

Comments:

The results are suitable and correct including content and style. The SW application is useful and flexible. The initiative and creative approach of the methods and work done with useful and valuable results.

Signature of the supervisor: