

I. IDENTIFICATION DATA

Thesis name:	Machine learning approach to ionizing particle recognition using hybrid active pixel detectors
Author's name:	Petr Manek, B.Sc.
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Science
Thesis supervisor:	M.Sc. Benedikt Bergmann
Supervisor's department:	Institute of Experimental and Applied Physics, CTU in Prague

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment <i>Evaluation of thesis difficulty of assignment.</i>	challenging
It is difficult for me to assess the difficulty from a programmer's standpoint. As far as I am concerned, I can say that Petr has done an excellent job. He has done most of the work by himself. He was coming up with algorithms and ideas. I only had to review his results from a point of view of physics. I have chosen challenging since a lot of people have tried to solve the tasks Petr has worked on and there was no satisfactory algorithm developed yet.	
Satisfaction of assignment <i>Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.</i>	fulfilled
The thesis fulfilled the assignment. Even more, additional analyses of the performance (evaluation of the track overlap, etc.) were performed.	
Activity and independence when creating final thesis <i>Assess that student had positive approach, time limits were met, conception was regularly consulted and was well prepared for consultations. Assess student's ability to work independently.</i>	A - excellent.
Petr is a very motivated and self-reliant student. He was always ahead of schedule and even defined the dates of the milestones by himself. He was perfectly prepared for every consultation.	
Technical level <i>Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.</i>	A - excellent.
Petr has reviewed expert literature in computer science and physics.	
Formal and language level, scope of thesis <i>Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.</i>	A - excellent.
The language level of the thesis is above average. The English is excellent. No other typographical mistakes could be identified.	
Selection of sources, citation correctness <i>Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.</i>	A - excellent.
The sources were exhaustive. Citation standards are met.	
Additional commentary and evaluation <i>Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical</i>	

or software conception, publication performance, experimental dexterity etc.

Petr has shown great interest in the topic, was highly self-reliant and able to understand the needs of physicists and data analysis. The developed analysis methods have been used to evaluate the data taken in the MOEDAL experiment, a physics experiment for the search of the magnetic monopole (which would be a Nobel price discovery). However, presented algorithms are useful for any pixel detector data.

Petr has developed a GUI which can be used to review data and apply his algorithms.

Overall, Petr deserves an excellent evaluation.

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Summarize thesis aspects that swayed your final evaluation.

I evaluate handed thesis with classification grade **A - excellent**.

Date: **29.5.2018**

Signature:

