

I. IDENTIFICATION DATA

Thesis name:	Multilingual Speech Recognition for Selected West-European Languages
Author's name:	Gloria María Montoya Gómez
Type of thesis:	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Circuit Theory
Thesis reviewer:	Ing. Josef Rajnoha, PhD.
Reviewer's department:	SAP CR

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>Evaluation of thesis difficulty of assignment.</i>	
Speech recognition systems achieve very good results today, and more and more they are available in real applications. There are also standardized tools and procedures for creating such systems more easily. On the other hand, you still need to gather information from many different areas, such as linguistics, acoustics or statistics, to ensure the quality of your work in this field. This is why I consider this topic as challenging .	

Satisfaction of assignment	fulfilled
<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>	
The assignment of the thesis defines logical procedure that leads to the creation of multilingual speech recognition system. All steps of this procedure were performed and the assignment is completely fulfilled in consistent way – from theory, over the description of the experiments, to the final discussion on achieved results.	

Method of conception	correct
<i>Assess that student has chosen correct approach or solution methods.</i>	
Standardly available speech and lexical corpora for different languages as well as available language models were used for the creation of the system. Due to that, it is possible to compare achieved results with other approaches from other teams. Also, standardized tools were used to create the recognizer. As a result, the final recognition score is in the expected range and shows that the used methods were correct ,	

Technical level	B - very good.
<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>	
On the technical level, the work is based on a variety of relevant sources which were used to understand the topic and to describe the most important aspects of the task. Nevertheless, there are some areas, where I would expect more detailed information to fully understand all the steps realized within the work, mainly: <ul style="list-style-type: none"> - Better description of the acoustic model combination. Only one paragraph is devoted to this topic, even I suppose it can influence the system performance quite significantly. - Detailed description of the procedure, which decreased the amount of data for English to 8000 utterances. As the corpora are often designed as balanced set of data, such reduction can also influence the performance of the final system. - More information about the approach to find the best recognition score of the monolingual system - mentioned in chapter 4.4.2. What parameters were considered to tune up the final system? Despite the points mentioned above, the level of technical specialty can be considered as very good .	

Formal and language level, scope of thesis

B - very good.

Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.

Basic thesis structure is well-arranged and the reader can easily go through the work with very good understanding of particular steps. Unfortunately, this good quality is decreased by quite high number of grammatical mistakes or errors in the text, for example bad or missing references. Therefore, the final impression could be like there was a big time pressure when finishing the work.

Selection of sources, citation correctness

A - excellent.

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.

Referenced sources are relevant and their usage in the thesis text shows that the topic was described and processed in sufficient level of understanding.

Additional commentary and evaluation

Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.

One additional comment could be related to the graphical output in the experimental part of the work. Instead of using graphs to show the same information, which can be read from the presented tables, I would recommend showing some different view of the results, for example some relative comparison of the results which would highlight the improvements of various approaches against each other.

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Summarize thesis aspects that swayed your final evaluation. Please present apt questions which student should answer during defense.

The theoretical review as well as achieved results show that the topic was understood correctly in sufficient depth. The acquired knowledge was used to create the system, which can be used for ongoing research in the field of multilingual speech recognition. The advantage of the work is, amongst others, the usage of externally available speech corpora and language models. Therefore, the results of the work are generally more comparable to other research activities.

On the other hand, some missing information about system tuning, adjustments or optimization negatively impact the possibility to follow the experiments without some deeper analysis of particular processing steps. Together with the grammatical or correctness issues in the thesis text, it slightly decreases the final assessment, which therefore could not be on the highest level.

I evaluate handed thesis with classification grade **B - very good.**

Date: **6.6.2018**

Signature: