

Opponent review of a doctoral thesis on:

Classification of Emotions in Human Speech

Doctoral thesis by: Ing. Pavol Partila

Supervised by: doc. Ing. Miroslav Vozňák, Ph.D.

Reviewer: prof. Ing. Ivan Zelinka, Ph.D.

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The submitted doctoral thesis deals with the speech emotion recognition and brings a new system for classification of emotions. As such, the field concerned is “Telecommunication technology”.

I consider the selected topic as current. At the same time, the number of references listed proves that the topic has been addressed in the long-run and by a number of other research centres.

The PhD student focussed in particular on the following goals, which were approved within doctoral proposal defence in 2014 (as listed in Chapter 3):

- Creation of the training and testing Czech language database with various emotion state recordings;
- Design of novel classifier dealing with speech emotion recognition. The contribution will be an identification of the most significant features in speech affecting human emotions and the own classifier based on the artificial neural network;
- Verification of results and achieved contribution, compared with actual well-known systems.

The PhD student managed to complete all the above tasks and the thesis achieved the pre-defined objective. I consider the methods applied comprising k-Nearest Neighbors, Support Vector Machines, Feed-Forward Back and finally parallel fusion of these three classifiers based on Bayes Belief Integration as suitable.

The accuracy of applied methods was verified on selected emotional states. The best results were achieved with Bayes belief integration fusion where the classification accuracy reached 85% for five emotional states of BerlinDB and 78% of emoDBova database.

The proposed system is a part of the infrastructure within a TACR project which tends to the practical application of results of dissertation.

The submitted doctoral thesis contains original results and complies the definition of a scientific work. The main contributions lies in the proposal new classifiers and their validation.

As regards author's outcomes in db Elsevier Scopus, 30 results (six of them in journals) were indexed mostly connected with topic of dissertation. Thus it can be concluded that original contributions which constitute the core of the doctoral thesis, had been published.

Suggestions for discussion:

1. Explain, how the structure of FFBP-NN was designed and how your proposal is guaranteed to achieve the best performance? Are you sure that more complex structure of FFBP-NN cannot provide better results?
2. Topic and results of dissertation deserve publication in a high-quality journal (I guess in Q1). I am wondering whether you have you done any steps in this issue.

The doctoral thesis has fulfilled the requirements on a scientific work and contains original results of a research published by the author of the doctoral thesis.

Therefore, I recommend the submitted doctoral thesis for defence and to be approved in accordance with § 47 of Act no. 111/1998 Coll. on Higher Education Institutions.



In Ostrava on 31.1.2017

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prof. Ing. Ivan Zelinka, Ph.D.