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Prof. RNDr. Alexander Meduna, CSc.
Chairman, Committee for Doctoral Thesis Defence
Computer Science and Engineering
Brno University of Technology
Božetěchova 2
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Dear Professor Meduna,

I have carefully read the doctoral thesis of Ing. Tomáš Mikolov, "Statistical Language Models Based on Neural Networks." This is a very important and influential piece of work, and combined with Mikolov's extensive publication record indicates that he is very well qualified to receive the PhD degree. In short, the work has established recurrent neural networks (RNNs) as the state-of-the-art method for doing language modeling. This is exceptional both because people had long felt that RNNs were too unsuitable for practical tasks, and because it is very seldom that thesis work results in a new high-water mark for a technology. I address your questions more specifically below.

- Is the topic appropriate to the particular area of dissertation and is it up-to-date from the viewpoint of the present level of knowledge?

The topic is not only appropriate and up-to-date, it significantly advances the state-of-the-art in the area of statistical language modeling.

- Is the work original and does it mean a contribution to the area - specify where the original contribution lies?

The original contributions are: the application of RNNs to language modeling; a novel word-classing procedure used to speed up the computations; the synthesis of maximum-entropy features into the output later of the network; and the discovery that the order of presentation of training examples has a significant effect on the ultimate quality of the learned model. I would consider the extensive experimentation completed to demonstrate the quality of the approach is also a significant contribution.

- Has the core of the doctoral thesis been published at an appropriate level?

Yes. Mikolov has published at top-rate speech recognition conferences, and his work is well known and respected in this community.

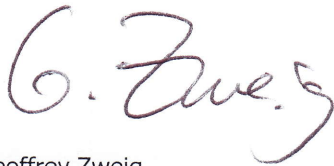
- Does the list of the candidate's publications imply that he is a person with an outstanding research erudition?

Yes. Mikolov has made an extensive study of RNNs for language modeling, and has also published on speaker identification, thus demonstrating broad erudition.

- More characteristics of the candidate may be added here.

Mikolov's experimentation is extremely thorough, and he goes well beyond the standard norms to carefully test his work and establish its benefits. This contributes greatly to its impact. Overall, I would rate his thesis work as of the very highest caliber; he is one of the top students of his generation.

Sincerely,



Dr. Geoffrey Zweig
7/10/2012
Principal Researcher
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