

Recommendation for the defense of Ph.D. thesis

Ph.D. candidate: Tomáš Mikolov
advisor: Jan Černocký

I am happy that Tomáš Mikolov has submitted his thesis under my supervision, although “supervision” must be detailed: while I acted as official supervisor, was happy to advise, organize and also to proof-read the thesis, the scientific part was largely inspired, advised and criticized by Frederick Jelinek and Sanjeev Khudanphur (both Johns Hopkins University) and Joshua Bengio (University of Montréal). Tomáš also obtained lots of useful input from Lukáš Burget and other members of the BUT Speech@FIT group.

He has been member of our research group since 2006, and from the very beginnings, demonstrated deep interest in artificial intelligence applied in speech and natural language processing. After the initial search of suitable topic, he concentrated on the use of neural networks and recurrent neural networks in language modeling, which has proven to be an excellent choice – by careful study of the literature, creative thinking, but also thorough experimental work and analysis of results, he has developed several techniques that reach excellent results on standard tasks, and this work has received ample attention from speech and NLP research community. I must credit him especially for always thinking about the complexity and implementation aspects, in order to make the experiments tractable and the techniques interesting for practical usage.

Tomáš visited several labs that are playing prime in our research fields: Johns Hopkins University (the Center for Language and Speech Processing) for 6 months in 2010, he worked under the guidance of Fred Jelinek and Sanjeev Khudanphur, and University of Montreal for 5 months in 2011, where he worked with the group of Joshua Bengio. He was able to take the best of these internships in terms in terms of knowledge exchange, and cooperation.

Tomáš is a proponent of a fair approach to research and heavily criticizes the (unfortunately quite common) practice of publishing results on obscure data with comparison to sub-optimal baselines to “make the results look good”. He has always taken care to produce his results on reproducible setups, and produced and published a toolkit implementing his ideas that has been successfully used at several labs. His scientific excellence is documented by more than 20 publications at important peer-reviewed conferences (Interspeech, ICASSP, ASRU) he authored or co-authored. His work continues to have large impact on the community – he was invited to talks at Microsoft, Google, several specialized LM workshops and he will spend summer 2012 at MS Research in Redmond.

From the personal point of view, I find Tomáš very intelligent and hard working. He is also dotted by the right amount of stubbornness that makes him pursue seemingly impossible research avenues and reach excellent results. He is always open for discussion and I appreciate his willingness to help colleagues and junior students in my group at every occasion.

To conclude, I fully recommend Tomáš Mikolov’s Ph.D. thesis for the defense, and I am looking forward to future work with him.

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