Václav Hlaváč, Professor
Czech Technical University in Prague
Czech Institute of Informatics, Robotics and Cybernetics
166 27 Praha 6, Jugoslávských partyzánů 1580/3, Czech Republic
phone +420 224 357 465, email vaclav.hlavac@cvut.cz

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Review of the habilitation thesis by RNDr. David Svoboda, Ph.D.

I was asked to review the habilitation thesis of Dr. David Svoboda who has been working at the Masaryk University in Brno, Faculty of Informatics, Center for Biomedical Image analysis. I have been a peripheral observer of his activity because of my contacts with the Faculty of Informatics and Prof. Michal Kozubek. We newer conducted any joint research.

The provided habilitation thesis written in English in two parts. The first part is the commentary on 26 pages unifying his scientific activities in four domains: (D1) image analysis; (D2) optimization of convolution; (D3) texture analysis, and (D4) Simulations. The second part is a collection papers coauthored by D. Svoboda, which fills 200 pages. The papers referred to in the habilitation thesis spans the period between years 2003-2016.

Let me give a simple summary statistics of the paper collection in a table.

Domain	# of papers	# of journal papers	# of first authored jour. papers	# of conference papers	# of first authored conf. papers
D1	5	3	0	2	1
D2	3	1	0	2	1
D3	3	0	0	3	0
D4	9	2	1	7	7

The thesis itself demonstrates how the candidate's scientific interests developed over past 14 years. The first thesis part, the commentary, allows nicely to get candidate's own view on the matter.

The provided collection of papers allows me to make several observations:

1. The candidate was able to contribute to several image analysis domains.
2. He proved the ability to conduct collaborative work so needed in biomedical image analysis domain. He contributed to different teams.
3. Over the years, his passion oriented to simulations in biomedical engineering. It is a natural development because the ground truth benchmark data are so much needed for increasingly used statistics-based descriptors and classifiers both for training and evaluation.
4. The thesis reports also a huge amount of implementation work invested into software tools used by the scientific community.
5. The thesis demonstrates that the candidate had several original scientific contributions to the state-of-the-art.

I have two questions to the candidate. I would wish he answers them at the defense.

1. Would he consider writing a consistent text-book style text introducing the domain of biomedical image simulation? Could he discuss the related thoughts? Would such a text be useful for the scientific community?
2. Did the recent popularity of deep convolutional networks influence the biomedical image simulation domain? If so, how?

Finally, I am assessing if the candidate is eligible for the Docent (Associate Professor) title. My answer to the question is positive for the following reasons: (1) The candidate has clearly showed the ability to conduct a good quality research and publish its result; (2) He has enough international experience.

To conclude, I believe that RNDr. David Svoboda, Ph.D. proved in his research and the reviewed thesis that he deserves to be promoted to the associate professor rank.

Sincerely

Václav Hlaváč