

Annex 6: Habilitation thesis reader's report

Masaryk University

Faculty MU Faculty of Informatics

Field of Habilitation Informatics

Applicant RNDr. Petr Holub, Ph.D.

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Habilitation Thesis Pushing Boundaries of User- Empowered Network-Centric Collaborative Environments

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Report Text (as large as the reader deems necessary)

The habilitation thesis of Petr Holub is well organised, mostly readable and accessible even to non-experts. Separate chapters provide appropriate information that put the scientific results achieved by the candidate in a broader context, and try to measure his individual contribution to each one of the papers enclosed in the second part of the thesis. Chapter 1 provides enough background knowledge to contextualize candidate work in the state of the art and to identify the scientific community of reference.

Research contributions are claimed in the scientific areas that are the focus of chapter 2 and 3: scheduling of network streams with bitrates comparable to the capacity of network links; multi-point (multimedia) data distribution; multimedia processing on commodity (GPU) architectures.

Finally, as direct practical outcomes of the work of the candidate, Chapter 4 describes a set of open source software tools developed in collaboration with other members of the research group. Among these tools, UltraGrid emerges for relevance. What is missing in this section is a table reporting some figures about the number of people worldwide that downloaded/use these tools.

Permanent academic positions are now highly competitive. Candidates are increasingly required to prove that they are capable of producing world-class research. Certifying research as truly world-class rather than merely of an “adequate” standard is highly complex. In the absence of any direct form of measurement, evaluators can only investigate proxies or indicators of the perceived quality of the research contribution. The papers supplied in the second part of the habilitation thesis, that are assumed to represent candidate's principal contributions, have thus to be examined as input to the question related to candidate research quality.

The principal proxies that can be utilized to answer this question are publication venues and bibliographic metrics. World-class researchers are in fact assumed to regularly publish in premier locations, highly reputed journals and top-tier conferences, within their field. Within any field, the list of premier locations is very short. In addition, world-class research is the

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one that influences papers by other members of the reference community in the future: the number of citations received by a paper is a (noisy) indicator of this second proxy.

The candidate presented 18 research papers and one patent (Czech patent awarded, U.S. patent application pending) to support his application. Overall a good publication record considering the young age of the candidate and the position for which he applies.

Journal papers:

4 papers are journal publications, 3 of them appeared on FGCS, one on Constraints. Two of the above papers appeared as short contributions in a special issue of FGCS follow-up of the iGrid 2005 exhibition. These two papers followed thus a different peer-review protocol. Regarding the ISI WOS JCR impact factor for these journals we have a value of 0.722 for FCGS 2006, 0.659 for Constraints 2011, and 1.864 for FCGS 2012. From google scholar we see that these papers had some impact in the community (39 + 33 + 9 + 0 citations). The number of citations cannot be considered a signal for the more recent paper (FCGS 2013), which looking at the content seems to be the most mature work of this set.

Conference papers:

11 papers were published in the proceedings of international conferences or workshops. Some of these papers appeared in the proceedings of top-tier or second tier conferences. For example the candidate have full papers at DCC 2011, IFIP NCP 2006 that can be considered good second-tier conferences, and short papers or extended abstract at ACM ICM, ACM CHI, which are top-tier very competitive conferences. The citations of candidate's conference papers are not many. Most cited paper received 24 citations (source Google scholar).

Other contributions:

The candidate presents also a co-authored book chapter and a patent of an optical device for multicast.

Reader's questions to answer to defend the habilitation thesis (number of questions is upon reader's consideration)

1. Illustrate briefly the research result that you believe the most important among the one you achieved and explain why do you consider it the most important;
2. During your scientific career you developed several software tools that are described in chapter 4 of your habilitation thesis. Can you give some figures about the impact these tools had on the community (e.g., number of users, downloads)? Are you aware of success stories involving these tools?
3. You claim to work in the borderline between research and real-world high-performance infrastructures. How your experience on real-world infrastructure can help your research and viceversa?

Conclusion

When, the above is considered, I regret to say that Petr Holub's habilitation thesis "*Pushing Boundaries of User- Empowered Network-Centric Collaborative Environments*" **would not** meet the standard requirements for a associate professor position in the field of Informatics in my country. I add "my country" because I am not aware of Czech standards. Summarizing and simplifying, I can add that Petr Holub's publication record is good, he published a lot

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during his young career, but the impact in the community of his research is still limited. My two-cents view is that he started relatively recently to publish his research in competitive venues. While his past research was mainly technology-oriented, now he appears to be a better researcher. Recent publications show in fact a noticeable improvement in the scientific maturity of the candidate. I would encourage him to be more and more ambitious in his work, in particular when choosing the publication venues.

In Pisa, on Feb. 27th 2014

Raffaele Perego

A handwritten signature in black ink, appearing to read 'Raffaele Perego', written in a cursive style.