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Annex No. 10 to the MU Directive on Habilitation Procedures and Professor Appointment Procedures

HABILITATION THESIS REVIEWER'S REPORT

Masaryk University	
Applicant	RNDr. Petr Novotný, Ph.D.
Habilitation thesis	Code and Design Safety of Probabilistic Systems
Reviewer	**Prof. Alessandro Abate**
Reviewer's home unit, institution	Department of Computer Science, University of Oxford, UK

I have evaluated the details in the pack provided by the applicant, and wish to comment on the following points.

The candidate appears to have engaged on a number of university teaching, across different levels, and all coherently focussed on the area of computer science. He thus appears to have developed a more than sufficient degree of proficiency in devising and delivering frontal teaching, as well as in handling practical sessions. Ha has additionally engaged in examination boards and has developed notes/material for the taught courses. I was impressed to read about his broad notes in maths logic - well done!

He has supervised a good number of BSc and MSc theses, and has engaged as a co-supervisor of a PhD student, who is about to complete his course of studies. I would expect this engagement with doctoral students will continue.

Hi publication record is very good: I was impressed by the coherent set of publications, almost all of which in very good conferences. I could almost track themes and research initiatives across different conferences, which indicates that he has been able to publish with constant output. His track on journal publications is much thinner, but this is understandable given his area of his work – however, this might be an item he might want to focus on, expanding on the current figures for the upcoming years.

He has also co-developed some sw, or sw tools? It would be nice to know whether he has led these dev initiatives, and whether they have been reproduced (as according to ACM guidelines), and currently maintained.

Citations count is reasonable, and its trend positive. His work appears to be having good impact. Surely it has had on my (the reviewer's) own work in this area.

He has been `mobile', engaging on a number of international visits, which complement his postdoctoral experience at IST. He has a very god number of recent and active collaborators, internationally.

He has been engaged in a number of Programme Committees, though I note the PC word has different meanings in formal methods and in AI – it'd be useful to distinguish them. Perhaps she could be more proactive on PC/senior area membership in the future.

Overall, his research activity is coherent and solid, and sustained – it does look promising for the future. He has more than enough experience with teaching.

Reviewer's questions for the habilitation thesis defence (number of questions up to the reviewer)

I have much enjoyed reading the habilitation thesis, especially since I am quite familiar with the area and with the applicant's past work. It was a pleasure to read his perspective on the problems that are currently under investigation in this area of work.

I have found Part I to be well presented. Of course, the survey introduces a by-now broad area from a specific perspective, and does not comprehensively cover all contributions on semantically related models that are investigated from other areas, such as that of (stochastic) hybrid/control models (the reviewer also has work on these topics), or of sound-vs-numerical (the latter, optimisation-based) synthesis of certificates, or of analysis of probabilistic programmes' moments. But this is a surely understandable limitation, and in fact the presented material is quite broad and technically coherent. The survey of work relates to issues on probabilistic verification and synthesis, respectively. I have found that the analysis of both qualitative, quantitative and risk-constrained setups was particularly worth highlighting. In conclusion, the author has managed displaying that he is a key contributor to this area, having made an impactful and deep contribution to problems of high interest for the community working in this area.

Conclusion

The habilitation thesis entitled "Code and Design Safety of Probabilistic Systems" by RNDr. Petr Novotný, Ph.D., **fulfils** the requirements expected of a habilitation thesis in the field of Informatics.

Date: 23 March 2023

Signature: