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Habilitation Board Decision on the Nomination for Appointment to Associate Professor

Masaryk University	
Faculty	Faculty of Informatics
Procedure field	Informatics
Applicant	Bruno Rossi, PhD
Applicant's home unit, institution	Faculty of Informatics, Masaryk University
Habilitation thesis	Experimental Research Towards Software Systems Quality
Board members	
Chair	prof. RNDr. Václav Matyáš, M.Sc., Ph.D.
	Faculty of Informatics, Masaryk University
Members	Prof. Claus Pahl
	Free University of Bozen-Bolzano, Italy
	prof. RNDr. Jan Strejček, Ph.D.
	Faculty of Informatics, Masaryk University
	prof. Ing. Petr Tůma, Dr.
	MFF UK v Praze
	doc. Ing. Miroslav Bureš, Ph.D.
	FEL ČVUT

Evaluation of the applicant's scholarly/artistic qualifications

According to the information provided in the application of the Candidate, his publication count included 7 journal articles covered by WoS or Scopus (2 published in Q1 journals, 4 in Q2 and 1 in Q3), 27 papers in conference proceedings (this count by August 2024 has risen to 29, with 5 papers in CORE A-ranking conferences, 20 in B-ranking and 4 in C-ranking). Several other publications (1 book chapter, 2 other journal articles) are included in the IS MU publications yet not in the application package.

Candidate's publications yielded responses in terms of over 1400 documented Google Scholar citations (with 200+ added annually in the past three years, with annual scores rising from about 2014), 427 citations document in the application package and a search over SCOPUS indicates 688 citations without self-citations and H-index 15, and over ISI WOK 398 citations without self-citations, H-index 12.

The Candidate holds the PhD degree since 2008, worked as a Researcher at the Free University of Bozen-Bolzano 2007-13, and since the end of 2013 Assistant Professor at the Faculty of Informatics, Masaryk University, with research focus on software quality and reliability as well as testing, simulations and data analyses in the smart grid systems.

The Candidate participated in several national and European projects, as a senior team member with the Laboratory of Software Architectures and Information Systems (Lasaris), yet did not act as a Principal Investigator for own independent research project.

Conclusion: The applicant's scholarly/artistic capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Informatics.

Evaluation of the applicant's pedagogical experience

The Candidate has taught at the university level for 17 years (2007-13 at the Free University of Bozen-Bolzano and since 2013 at Masaryk University) in various areas of software engineering at both Bachelor and Master levels, has taught overall 2 courses abroad and 5 regular courses at Masaryk University – e.g., PV217 Service Oriented Architecture, PV258 SW Requirements Engineering, PV260 Software Quality or PA165 Java Enterprise Applications. He has been the lead lecturer for both courses taught at the Free University of Bozen-Bolzano and for 3 of the courses taught at Masaryk University. On top of these counts, he was also responsible for 6 seminars and lab courses.

His teaching load, long-term through about ten years, corresponds to the levels expected from Assistant Professors at the Faculty of Informatics, Masaryk University. Also, the trend of moving the lecture topics gradually from general subjects to areas closer to the focus of Candidate's research is to be taken to his credit.

The Candidate supervised 17 Bachelor theses (all successfully defended), and a remarkable number of 87 Master theses (78 defended), 4 theses with Dean's Award. He also serves as a consultant-supervisor for 1 PhD student, and participated in examination boards at various levels (incl. PhD) since 2009.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Informatics.

Habilitation thesis evaluation

All three external reviewers have very positive views of the submitted thesis in terms of merit, impact of included publications and quality of research, to reviewers pay a particular attention to the diversity of research topics/areas, and all three concluded that the habilitation

thesis submitted by Bruno Rossi entitled "Experimental Research Towards Software Systems Quality" meets the requirements applicable to habilitation theses in the field of Informatics. Illustrative excerpts from their reviews follow:

Prof. Mauro Pezzè (USI Universita della Svizzera Italiana, Faculty of Informatics): The habilitation thesis clearly frames the many results in a coherent framework in the

introduction, where it motivates the overall research with the quality of software and

cyberphysical systems…

The work of Dr. Rossi has been very productive especially in the last five years. The publications of dr. Rossi are well cited and appreciated. The habilitation thesis offers a

coherent framework of the results obtained so far. The list of coauthors indicates a large

network of collaborations. The publication venues are very diverse, and it is difficult to

identify a strong belonging to a community. The focus on software system quality, software

processes, empirical software engineering and software reliability does not reflect in regular

publications in top venues of software engineering, software quality and empirical software

engineering, as expected.

Overall, the habilitation thesis offers a coherent vision of a good research activity over

several years, with a constant growth in the last decade.

Assoc. Prof. Tomáš Černý (The University of Arizona, Department of Systems & Industrial Engineering): The thesis considers Software Systems Quality improvement, focuses on automation, and applies empirical software engineering. The research areas are, however, rather broad and not highly cohesive.

On one end, it deals with testing; next, it applies technical debt identification and quality teaching. On the other end, it looks into smart grids, which seem more like two divided clusters. Of quality and smart grids.

Similarly, the first cluster remains rather disjoint while looking into the development process,

testing, product quality, reliability, and education. The concern here is that such a broad range

limits specialization and likely future grant funding.

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Despite some critical perspectives, there is sufficient evidence that the applicant can perform

and supervise independent research in the area and is well cited. This can also be confirmed by observing more recent publications after this thesis.

The habilitation thesis entitled "Experimental Research Towards Software Systems Quality" by Bruni Rossi fulfills the requirements expected of a habilitation thesis in the field of Computer

Science.

Assoc. Prof. Paolo Arcaini (The National Institute of Informatics, Tokyo, Japan): Dr. Rossi habilitation thesis provides a comprehensive overview of his works in the last 10 years. Dr. Rossi's work is positioned in the Evidence-Based Software Engineering (EBSE) research field, with works on software development process quality and software product quality. Different works are positioned around the area of smart grids, from anomaly detection to co-simulation. Overall, the thesis provides a solid contribution in the EBSE research area. All the works are characterized by the rigorous application of EBSE research methods.

A positive aspect of the research of Dr. Rossi is the collaboration with industry, with notable

works like [57] and [102].

The research has been published in good SE conferences, such as CSE-SEET, EASE, and

MSR; and journals such as Journal of Software: Evolution and Process, IEEE Transactions on

Industrial Informatics, and Sustainable Computing: Informatics and Systems. In the analysed years, Dr. Rossi has constantly published in different venues with different authors.

To conclude, I think that Dr. Rossi deserves the habilitation.

The habilitation board also reviewed the evaluation report of the applicant's public lecture "Software Reliability Engineering: from Software Reliability Models to Software Resilience", given on April 30, 2024. The lecture was evaluated by all members of the board (at the time of the

lecture), with professors Matyáš, Strejček and Vojnar attending the lecture in person, and professors Pahl and Tůma evaluating the lecture from a video recording. The conclusion was that the lecture demonstrated sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Informatics.

Conclusion: The applicant's habilitation thesis **meets** the requirements expected of habilitation theses in the field of Informatics.

Habilitation Board Decision on the Nomination for Appointment to Associate Professor

Secret vote results

Voting took place: electronically

Number of board members		5
Number of votes cast		5
of which	in favour	5
	against	0

Board decision

Based on the outcome of the secret vote and following an evaluation of the applicant's scholarly or artistic qualifications, pedagogical experience and habilitation thesis, the board hereby submits a proposal to the Scientific Board of the Faculty of Informatics of Masaryk University to **appoint the applicant associate professor** of Informatics.

In Brno on 30.08.2024

prof. RNDr. Václav Matyáš, M.Sc., Ph.D. ....