MUNI

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

HABILITATION THESIS REVIEWER'S REPORT

Masaryk University

Applicant	Bruno Rossi, PhD
Habilitation thesis	title
Reviewer	Barbara Russo, PhD
Reviewer's home unit, institution	Free university of Bozen-Bolzano, Italy

The habilitation work of Dr. Bruno Rossi primarily focuses on the quality of systems applied to two main domains: software systems and smart grids.

The research in software systems spans several critical areas of software engineering including agile methods, code reviews, testing, technical debt, software reliability, and anomaly detection. The methodology and the techniques proposed in the research predominantly encompass empirical software engineering with particular focus on data mining and automation.

The research in smart grids focuses on studying and developing solutions for quality monitoring, including a platform for big data analytics tailored for smart grids to detect anomalies, an architectural solution utilizing Arduino and Raspberry Pi boards to simulate various smart grid scenarios, a risk management framework, and a test management platform for smart grids.

In his research, Dr. Rossi has developed a set of tools for quality monitoring both in software development (e.g., STRAIT published at MSR) and in smart grid (test management platform published in Applied Science). He also developed hardware prototypes simulating smart grids (published at SEAA).

Dr. Rossi has also displayed a particular interest in educational matters. A significant portion of his papers stem from supervising students. He has also contributed to Software Engineering education and presented at ICSE-SEET a catalogue of the most common mistakes students make in learning UML models and at EASE the experience from a software quality course.

Overall, Dr. Rossi has presented 17 publications from 2014 to 2022 out of which 11 were published at conferences and 6 in journals all indexed in Scopus. In 14 of them, the candidate is the last author. He is first author for the 2020 journal paper in IEEE Transactions on Industrial Informatics and the conference paper at SMC 2016. Among the conference articles five are less than five pages (short publications). According to the conference ranking of GRIN (https://scie.lcc.uma.es), eight conference papers are class B-, one class A-, one class A, and one class A++. According to Scimago ranking (https://www.scimagojr.com), four journal papers are of class Q3 and two are of class Q1. Overall, the publications' record of Dr. Rossi is satisfactory also with respect to the Italian practice and law.

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

1. The research in software systems spans across different areas of software maintenance. Could Dr. Rossi elaborate further on any common line of research shared by the different research works?

2. In Dr. Rossi's research on smart grids, various platforms and framework have been designed and developed.
   a. How have these solutions advanced the state-of-the-art?
   b. How effective have been (or can be) the proposed solutions also in real scenarios?

3. What are the common dimensions of quality addressed in Dr. Rossi's research in software systems and smart grids?

4. What are the competences/techniques in software engineering that have been leveraged in the smart grid domain?

5. On the contrary, could Dr. Rossi elaborate more on the key challenges that differentiate the research approaches and methodologies employed in these two domains?

Conclusion

The habilitation thesis entitled Experimental Research Towards Software Systems Quality by Dr. Bruno Rossi fulfils requirements expected of a habilitation thesis in the field of Software Engineering.

Date: March 31st 2024   Signature: