

PUBLIC LECTURE EVALUATION

Masaryk University

Faculty	Faculty of Informatics
Procedure field	Informatics
Applicant	Bruno Rossi, PhD
Lecture date	30. 4. 2024
Lecture topic	Software Reliability Engineering: from Software Reliability Models to Software Resilience
Persons present (number)	28
Designated evaluators (board members)	prof. RNDr. Václav Matyáš, M.Sc., Ph.D. prof. RNDr. Jan Strejček, Ph.D. prof. Ing. Tomáš Vojnar, Ph.D.

The lecture was evaluated by all members of the board, with professors Matyáš, Strejček and Vojnar attending the lecture in person, and professors Pahl and Tůma evaluating the lecture from a video recording.

The public habilitation lecture of Dr. Bruno Rossi covered three related areas: software reliability, quality models and paths to (improved) software resilience. The candidate first provided a sound grounding of software reliability as a concept, together with its facets/dimensions, leading to the software reliability engineering (SRE). Bruno shared some initial insights into seminal concepts in SRE and then selected work on the software reliability growth modelling, inclusive of the analyses that he co-authored and tooling developed for mining failure data from software repositories. This was well illustrated through results (of a study Bruno co-authored) examining fits of several leading models to several dozen open source projects. These results then served to identify major challenges to common software reliability growth models. The next part of Bruno's lecture reviewed relation of software engineering metrics to prediction of defects, inclusive of his work on software defect prediction - presenting again some of the results from studies of model fitting and identified major challenges. The final part of Bruno's presentation focused on approaches to improvement of software resilience.

The lecture delivered the most fundamental concepts covered, although the speaker did not fully succeed in attracting and motivating an audience beyond the software engineering domain. The first two parts of the lecture would be judged as standard-level, while the third part was too abstract, not linking clearly enough to the overarching and in principle well-chosen theme of software reliability and resilience. From a software engineering perspective,

the selection of material was justified, showing a good use of the body of knowledge in the domain.

The lecture overall was high-level and aimed to cover many topics, but the slides used were sometimes too detailed and did not correspond to the level of abstraction chosen. The time management for the lecture could be improved. Also, sometimes concepts that got discussed first (e.g., research questions from a particular project) got explained only a bit later on. Nonetheless, the technical content was sound and demonstrated competence in the domain. Bruno was successful in providing context and also positioning his various contributions across the different subtopics.

The questions & answers part of the lecture was very good to excellent, illustrating practical experience of the speaker in the area.

Conclusion

The lecture delivered by Bruno Rossi, PhD, entitled “Software Reliability Engineering: from Software Reliability Models to Software Resilience” and delivered as part of the habilitation procedure, demonstrated sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Informatics.

Date: 30. 4. 2024

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

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