A Report on Workshops co-located with ISEC 2020

Sridhar Chimalakonda
ch@iittp.ac.in
Indian Institute of Technology Tirupati
Tirupati, India

Hironori Washizaki
washizaki@waseda.jp
Waseda University
Tokyo, Japan

ABSTRACT

The ISEC 2020 program accepted three workshops after an internal assessment by workshop chairs (i) *Software Engineering for Artificial Intelligence (SE4AI)*, (ii) *3rd Workshop on Emerging Software Engineering Education (WESEE 2020)*, and (iii) *2nd Workshop on Software Engineering for an Uncertain World*. These workshops provide forums for researchers and practitioners to exchange and discuss a particular research topic either well-established or emerging. The workshops also provide a forum to discuss scientific ideas before they have matured to warrant conference or journal publications.

CCS CONCEPTS

• **Social and professional topics** → *Software engineering education*; • **Computing methodologies** → *Artificial intelligence*; • **Software and its engineering** → *Formal methods.*

KEYWORDS

Software Engineering, Workshops, Artificial Intelligence, Software Engineering Education

ACM Reference Format:
Sridhar Chimalakonda and Hironori Washizaki. 2020. A Report on Workshops co-located with ISEC 2020. In *13th Innovations in Software Engineering Conference (formerly known as India Software Engineering Conference) (ISEC 2020), February 27–29, 2020, Jabalpur, India.* ACM, New York, NY, USA, 2 pages. https://doi.org/10.1145/3385032.3385056

1 INTRODUCTION

This brief note summarizes the workshops organized in the 13th Innovations in Software Engineering Conference (Formerly, India software engineering Conference) held on 27th February at Jabalpur, India. Workshops are considered as integral part of the ISEC conference since inception held one day prior to the main conference and foster interesting discussions between academic and industry audience.

2 SELECTED WORKSHOPS

The ISEC 2020 workshop chairs have invited proposals in two categories (i) half-day and (ii) full-day workshops focusing on either established or emerging practice/research topics related to the field of software engineering. The workshops at ISEC usually have audience from both academia and industry making it important to identify relevant topics. A half-day workshop should be for 2.5 to 3 hours whereas the full-day workshop should be for 5.5 to 6 hours.

The workshop chairs have assessed the proposals for their suitability for the conference from the perspectives of relevance, practicality among other things and selected two full day workshops and one half-day workshop.

2.1 Software Engineering for Artificial Intelligence (SE4AI) Workshop

The SE4AI workshop addresses the challenges of software engineering and AI, with an aim to identify synergy, common problems, solutions and visions for the future of the area. To develop and operate the AI-based dynamic, adaptive, context-aware, large and dependable software-intensive systems, it is expected to consider and incorporate the nature of the data-driven decisions and mechanism into the software engineering solution such as testing Machine Learning applications in corporation with uncertainty. On the other hand, it is required to combine the AI-based data-driven approaches with traditional software development approaches to effectively make the software development (requirement, design, testing, deployment and operation management) intelligent.

2.2 Workshop on Emerging Software Engineering Education (WSEE)

Considering the evolving technologies and growing needs of modern day customers, it is important to inculcate science and art of software engineering in the computer science curricula at undergraduate and postgraduate levels. A typical software engineering course should also focus on interpersonal and communication skills in addition to various processes, methods to support development, operation and maintenance of large-scale and change prone software systems. Increasing range of software engineering domains such as embedded systems, robotics, artificial intelligence and so on requires innovative teaching and learning methods to produce highly skilled workforce, capable of handling this wide range. This third edition of WESEE aims to invoke discussions and futuristic aspirations on creative teaching and evaluation methods and innovative course curricula and bridge the gap between academia and industry.

2.3 Software Engineering for an Uncertain World

The assumption of static software systems, characterised by completeness and certainty is being questioned for various reasons such as increase in requirement of complex systems, that are likely to be non-deterministic due to inherent uncertainty and non availability of incomplete information. The inadequacy of current software

ISEC 2020, February 27–29, 2020, Jabalpur, India

ACM ISBN 978-1-4503-7594-8/20/02.
https://doi.org/10.1145/3385032.3385056

engineering and software system architectures leads to the question of ideal characteristics of software systems and process of effectively engineering these systems. The "Software Engineering for an Uncertain World (SE4UW)" workshop aims to debate these and other related critical issues. We believe ideas from multiple fields such as programming languages, models of computation, non- determinism, learning techniques, AI, dynamic adaptation, and knowledge modeling need to come together for addressing this challenge. SE4UW workshop program comprises of invited talks (45 minutes each) by leading researchers from the relevant fields followed by open discussion towards the end.

3 INSIGHTS

3.1 Software Engineering for Artificial Intelligence (SE4AI) Workshop

- *For Researchers and Academicians*- There is extensive research on applying AI for software engineering. However, there is ongoing research happening on software engineering for AI. One main outcome of this workshop is to discuss around the ideas to figure out how AI can add value to SE and how SE can add value to AI. One of the expected outcomes of this workshop is that it will foster research in both AI for SE and SE for AI.
- *For Practitioners*- There are several techniques, tools and frameworks available for AI that can be applied to SE. However, they cannot be directly applied but have to be redesigned for software engineering context. These discussions might help practitioners to understand the current techniques and tools in AI that can be applied for SE and the limitations of those techniques and tools which should be improved from a practice perspective.

3.2 Workshop on Emerging Software Engineering Education

- *For Researchers and Academicians*- Given the interest in diversity in software engineering and large volume of cognitive and social science research that is happening with respect to teaching of SE, we see that this workshop can provide insights for SE researchers to adopt methods in social sciences research, to improve teaching and learning of SE.
- *For Practitioners*- From a practitioner's perspective, the material that will be discussed in the workshop could be useful to understand the current trends and modes of teaching and learning in software engineering.

3.3 Software Engineering for an Uncertain World

- *For Researchers and Academicians*- Despite rapid advances in model checking, program verification and so on, there is need for further research in the area of formal methods, and especially to design software for an uncertain world. We see that this workshop can bridge the gap between academicians and researchers in this area by providing list of techniques and tools to be used by practitioners.
- *For Practitioners*- The workshop can also provide hints for practitioners to understand the challenges faced by academicians when designing formal methods for large scale, complex applications and specifically designing software for uncertain world. Practitioners can also provide insights for academicians to address some of these challenges.

The overall goal of the workshops at ISEC 2020 is to bridge the gap between academicians/researchers and practitioners through discussions, dialogue and debate on current and emerging topics in software engineering. We believe that this workshop will be useful to ISEC 2020 audience and at large to the SE community.

4 ACKNOWLEDGEMENTS

We would like to thank the general chairs of ISEC 2020, the workshop organizers and the organizing committee of ISEC 2020 and ACM iSoft for giving us an opportunity to reflect on the workshops at ISEC 2020.