

2nd International Workshop on Requirements Engineering for Self-Adaptive & Cyber Physical Systems

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1 Introduction

Self-Adaptive Systems (SAS) and Cyber Physical Systems (CPS) continue to engage the academic of Software Engineering in general and Requirements Engineering in particular. While SAS are often seen as systems that are able to adapt to changing requirements at runtime, CPS develop ad-hoc networks to provide emerging functionality at runtime. Both SAS and CPS hence push the boundary of contemporary engineering approaches, as adaptivity and ad-hoc networking and functional reorganization must be systematically engineered into these systems at the requirements level. The purpose of the International Workshop on Requirements Engineering for Self-Adaptive and Cyber Physical Systems (RESACS) is to provide a platform to investigate the ability of existing approaches to serve the needs for SAS and CPS development, develop new approaches for SAS and CPS development, and discuss emerging topics and future trends in this field.

2 A Look Back to RESACS 2015

In the 2015 edition of RESACS, two main emerging ideas were discussed. On the one hand, it was recognized that not only context-awareness, but also context engineering is necessary to be able to face the challenges of SAS and CPS development. According to the workshop discussions, context must not only be considered like is typically done in Requirements Engineering, but it is central to elicit, document, and reason about assumptions, context functions, context entities, and their interactions in a systematic manner. As it seems, there are few approaches currently available that assist in doing so nor have many approaches been applied in such a manner. On the other hand, the 2015 workshop discussion was centered around trustworthiness. Workshop participants noted that a core aspect of both SAS and CPS is adaptivity and that adaptivity leads to a certain degree of unpredictability. It was noted in a lively discussion that adaptation must occur in a way that is adequate with the needs of the users. In other words, users must be able to trust the system to adapt properly without compromising the expected functionality nor their personal privacy.

3 Summary of RESACS 2016

This year's workshop program was once again intriguing. In a research preview by Fabian Kneer and Erik Kamsties [1], the idea was put forward that albeit a large quantity of SAS development approaches has been proposed, such approaches seem to be aimed towards different aspects of the MAPE loop, making it hard for practitioners to select an approach appropriate for their development project. Therefore, Kneer and Kamsties seek to propose an evaluation framework to assist practitioners in selecting the right approach. Touching upon last year's theme of trustworthiness, Nicolás Emilio Díaz Ferreyra and Johanna Schäwel [2] discuss how social media services pose potential threats to privacy and user integrity through a lack of user guidance in self-disclosure of private information. The authors suggest applying a SAS approach to identifying sensitive data in order to provide such guidance to the user. Finally, Jennifer Brings et al. [3] propose an approach to foster requirements prototyping in CPS development. Using a model-based documentation scheme, assumptions about the interaction of CPS can be validated early during development.

4 Workshop Technicalities

Each paper has received at least three reviews from program committee members and organizers. The reviews evaluated the maturity of manuscripts, their scope with regard to the workshop goals, and the soundness of the presented ideas. Based on the reviews, three papers were accepted for presentation at the workshop. One paper was accepted as a full paper, and two were accepted as short papers. We, the organizers, are indebted to the program committee members:

- Raian Ali – *Bournemouth University, UK*
- Ottmar Bender – *Airbus Defence and Space, Germany*
- Maya Daneva – *University of Twente, Netherlands*
- Peter Heidl – *Robert Bosch GmbH, Germany*
- Zhi Jin – *Beijing University, China*
- Alessia Knauss – *Chalmers University, Sweden*
- Kai Petersen – *Blekinge University, Sweden*
- Carme Quer – *Universitat Politècnica de Catalunya, Spain*
- Björn Regnell – *Lund University, Sweden*
- Vítor E. Silva Souza – *Federal University of Espirito Santo, Brazil*

References

1. Kneer, F., Kamsties, E: A Framework for Prototyping and Evaluating Self-adaptive Systems - A Research Preview.
2. Ferreyra, N., Schäwel, J.: Self-Disclosure in Social Media: Challenges & Opportunities for Self-Adaptive Systems.
3. Brings, J., Bohn, P., Bandyszak, T., Föcker, F., Daun, M.: Model-Based Prototype Development to Support Early Validation of Cyber-Physical System Specifications