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Software Engineering for Resilient Systems

11th International Workshop, SERENE 2019 Naples, Italy, September 17, 2019 Proceedings

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Preface

This volume contains the proceedings of the 11th International Workshop on Software Engineering for Resilient Systems (SERENE 2019). SERENE 2019 took place in Naples, Italy, on September 17, 2019. The SERENE workshop is an annual event that brings together leading researchers and practitioners from academia and industry, to advance the state of the art and to identify open challenges in the software engineering of resilient systems.

The 2019 edition of SERENE provided a forum for the exchange of ideas on advances in areas of software engineering for resilient systems, including, but not limited to:

Development of resilient systems

- Engineering processes for resilient systems
- Requirements engineering and re-engineering for resilience
- Frameworks, patterns, and software architectures for resilience
- Engineering of self-healing autonomic systems
- Design of trustworthy and intrusion-safe systems
- Resilience at run-time (mechanisms, reasoning, and adaptation)
- Resilience and dependability (resilience vs. robustness, dependable vs. adaptive systems)

Verification, validation and evaluation of resilience

- Modeling and model based analysis of resilience properties
- Formal and semi-formal techniques for verification and validation
- Experimental evaluations of resilient systems
- Quantitative approaches to ensuring resilience
- Resilience prediction

Case studies and applications

- Empirical studies in the domain of resilient systems
- Methodologies adopted in industrial contexts
- Cloud computing and resilient service provisioning
- Resilience for data-driven systems (e.g., big data-based adaption and resilience)
- Resilient cyber-physical systems and infrastructures
- Global aspects of resilience engineering: education, training, and cooperation

SERENE 2019 attracted 12 submissions, from which 5 submissions were accepted as full papers and 4 submissions were accepted as short papers. Every submission received at least three rigorous reviews. We would like to express our gratitude to the Program Committee members and the additional reviewers, who actively participated in reviewing and discussing the submissions.

In addition to the high-quality papers selected by the Program Committee, SERENE 2019 featured an enlightening keynote and an invited paper. The keynote addressed the ethics and privacy of autonomous systems and was presented by Paola Inverardi, professor at the University of L'Aquila, the recipient of the 2013 IEEE TCSE Distinguished Service Award, and a leading expert in software engineering. The invited paper, contributed by Jesper Andersson, Vincenzo Grassi, Raffaela Mirandola, and Diego Perez-Palacin, introduced a unifying conceptual framework for the characterization of system resilience.

Since 2015 SERENE has become part of a major European dependability forum – the European Dependable Computing Conference (EDCC). We would like to thank the Organizing Committee of EDCC 2019 for their help in organizing the workshop. We are also grateful to EasyChair for facilitating the SERENE 2019 submission, reviewing, and proceedings generation.

September 2019

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