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Goetz Botterweck · Claudia Werner (Eds.)

Mastering Scale and Complexity in Software Reuse

16th International Conference on Software Reuse, ICSR 2017
Salvador, Brazil, May 29–31, 2017
Proceedings

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ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-319-56855-3 ISBN 978-3-319-56856-0 (eBook)
DOI 10.1007/978-3-319-56856-0

Library of Congress Control Number: 2017936356

LNCS Sublibrary: SL2 – Programming and Software Engineering

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The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

This volume contains the proceedings of the International Conference on Software Reuse (ICSR 16) held during May 29–31, 2017, in Salvador, Brazil.

The International Conference on Software Reuse is the premier international event in the software reuse community. The main goal of ICSR is to present the most recent advances and breakthroughs in the area of software reuse and to promote an intensive and continuous exchange among researchers and practitioners.

The conference featured two keynotes by Mark Harman, University College London, and Thomas Zimmermann, Microsoft Research. We received 34 submissions (excluding withdrawn submissions). Each submission was reviewed by three Program Committee members. The committee decided to accept 11 papers, out of which eight full papers and three short ones, resulting in an acceptance rate of 32.3%. The program also included invited talks, a workshop, a doctoral symposium, and two tutorials. Abstracts of all these are also included in this volume. The program was complemented by tool demos and doctoral symposium.

This conference was a collaborative work that could only be realized through many dedicated efforts. First of all, we would like to thank Eduardo Almeida and Ivan Machado for their work as general chair and local chair, respectively. Rafael Capilla organized the workshop and tutorial program. Deepak Dhungana organized the demonstrations and tools track. Rohit Gheyi was Doctoral Symposium Chair. Tassio Vale and Alcemir Santos both served as Web chairs, while Crescencio Lima and Iuri Souza served as financial chairs. We would also like to thank Paulo Silveira for his work as proceedings chair.

We would also like to thank Fapesb, Secretaria de Ciência, Tecnologia e Inovação, Governo do Estado da Bahia, and CAPES for their financial support of the conference, which was paramount to holding the conference in Salvador, Brazil.

Last but not least, as program co-chairs of ICSR 2017, we would like to sincerely thank all authors who submitted papers to the conference for their contributions. We also thank the members of the Program Committee and the additional reviewers for their detailed and timely reviews as well as their participation in the discussions of the submissions.

February 2017

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Keynote Abstracts

Alice in Dataland: Reuse for Data Science in Software Teams

Thomas Zimmermann

Microsoft Research, Redmond, USA
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Abstract. Data is changing the world and how we build software. Running software produces large amounts of raw data about development processes and customer usage of software. In this talk, I will motivate the need for data analytics and show how data scientists work in a large software companies such as Microsoft helping software teams to infer actionable insights. I will highlight opportunities related to software reuse for researchers, practitioners, and educators.

Bio. Thomas Zimmermann is a Senior Researcher in the Research in Software Engineering (RiSE) group at Microsoft Research, Redmond, USA. His research interests include software productivity, software analytics, recommender systems, and games research. He is best known for his research on systematic mining of software repositories to conduct empirical studies and to build tools to support developers and managers. His work received several awards, including Ten Year Most Influential Paper awards at ICSE'14 and MSR'14, five ACM SIGSOFT Distinguished Paper Awards, and a CHI Honorable Mention. He currently serves as General Chair for SIGSOFT FSE'16 and as Program Co-Chair for ICSME 2017. He is Co-Editor in Chief of the Empirical Software Engineering journal and serves on the editorial boards of several journals, including the IEEE Transactions on Software Engineering. He received his PhD in 2008 from Saarland University in Germany. His homepage is <http://thomas-zimmermann.com>.

Software Transplantation for Reuse

Mark Harman

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Abstract. This talk describe recent advances in automated software transplantation and genetic improvement, focusing on their potential for reuse. Transplantation automatically transfers code from one system, a donor, into another unrelated system, the host, transforming it in order to transfer functionality from donor to host. Genetic improvement automatically improves operational characteristics of existing systems, such as execution time, memory requirements, and energy consumption.

This keynote is based on joint work with Earl Barr, Bobby Bruce, Yue Jia, Bill Langdon, Alexandru Marginean, Justyna Petke, Federica Sarro, Fan Wu and Yuanyuan Zhang in the CREST centre at UCL. CREST's work on automated transplantation won an ACM distinguished paper award (at ISSTA 2015) and the gold medal for human competitive results at the GECCO 2016 Humie awards.

Bio. Mark Harman is professor of Software Engineering in the Department of Computer Science at University College London, where he directs the CREST centre and is Head of Software Systems Engineering. He is widely known for work on source code analysis and testing and co-founded the field of Search Based Software Engineering (SBSE). SBSE research has rapidly grown over the past five years and now includes over 1600 authors, from nearly 300 institutions spread over more than 40 countries.

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