Lecture Notes in Computer Science **10888**

Commenced Publication in 1973
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Arend Rensink · Jesús Sánchez Cuadrado (Eds.)

Theory and Practice of Model Transformation

11th International Conference, ICMT 2018
Held as Part of STAF 2018
Toulouse, France, June 25–26, 2018
Proceedings

Springer

Editors
Arend Rensink
University of Twente
Enschede
The Netherlands

Jesús Sánchez Cuadrado
University of Murcia
Murcia
Spain

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-319-93316-0 ISBN 978-3-319-93317-7 (eBook)
https://doi.org/10.1007/978-3-319-93317-7

LNCS Sublibrary: SL2 – Programming and Software Engineering

Printed on acid-free paper

This Springer imprint is published by the registered company Springer International Publishing AG
part of Springer Nature
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

Software Technologies: Applications and Foundations (STAF) is a federation of leading conferences on software technologies. It provides a loose umbrella organization with a Steering Committee that ensures continuity. The STAF federated event takes place annually. The participating conferences and workshops may vary from year to year, but they all focus on foundational and practical advances in software technology. The conferences address all aspects of software technology, from object-oriented design, testing, mathematical approaches to modeling and verification, transformation, model-driven engineering, aspect-oriented techniques, and tools. STAF was created in 2013 as a follow-up to the TOOLS conference series that played a key role in the deployment of object-oriented technologies. TOOLS was created in 1988 by Jean Bézivin and Bertrand Meyer and STAF 2018 can be considered its 30th birthday.

STAF 2018 took place in Toulouse, France, during June 25–29, 2018, and hosted: five conferences, ECMFA 2018, ICGT 2018, ICMT 2018, SEFM 2018, TAP 2018, and the Transformation Tool Contest TTC 2018; eight workshops and associated events. STAF 2018 featured seven internationally renowned keynote speakers, welcomed participants from all around the world, and had the pleasure to host a talk by the founders of the TOOLS conference Jean Bézivin and Bertrand Meyer.

The STAF 2018 Organizing Committee would like to thank (a) all participants for submitting to and attending the event, (b) the Program Committees and Steering Committees of all the individual conferences and satellite events for their hard work, (c) the keynote speakers for their thoughtful, insightful, and inspiring talks, and (d) the Ecole Nationale Supérieure d'Electrotechnique, Electronique, Hydraulique et Télécommunications (ENSEEIHT), the Institut National Polytechnique de Toulouse (Toulouse INP), the Institut de Recherche en Informatique de Toulouse (IRIT) for hosting us and for their support. A special thanks goes to all the members of the Software and System Reliability Department of the IRIT laboratory and the members of the INP-Act SAIC, coping with all the foreseen and unforeseen work to prepare a memorable event.

June 2018

Marc Pantel
Jean-Michel Bruel

Preface

This volume contains the papers presented at ICMT 2018: the 11th International Conference on Model Transformation held during June 25–26, 2018, in Toulouse, France, as part of the STAF 2018 (Software Technologies: Applications and Foundations) conference series. ICMT is the premier forum for researchers and practitioners from all areas of model transformation.

Modeling is a key element in reducing the complexity of software systems during their development and maintenance. Model transformations are essential for elevating models from documentation elements to first-class artifacts. Transformations also play a key role in analyzing models to reveal conceptual flaws or highlight quality bottlenecks and in integrating heterogeneous tools into unified tool chains.

Model transformation encompasses a variety of technical spaces, including modelware, grammarware, dataware, and ontoware, a variety of model representations, e.g., trees vs. graphs, and a variety of transformation paradigms including rule-based transformations, term re-writing, and manipulations of objects in general-purpose programming languages. Moreover, in other fields such as compiler construction, the use of transformations is likewise essential. Identifying means to reuse and share knowledge between fields is also of interest.

The study of model transformation includes foundations, structuring mechanisms, and properties, such as modularity and composability, transformation languages, techniques, and tools. An important goal of the field is the development of high-level model transformation languages, providing transformations that are amenable to higher-order model transformations or tailored to specific transformation problems. At the same time, usable and scalable verification techniques for model transformations are essential for the practical development of the field. Another key challenge is the efficient execution of model queries and transformations by scalable transformation engines. Novel algorithms as well as innovative (e.g., distributed) execution strategies and domain-specific optimizations are sought in this respect. Model transformations have become artifacts that need to be managed in a structured way, resulting in developing methodology and tools to deal with versioning, (co-)evolution, reuse, etc. Correctness of model transformations has to be guaranteed as well.

This year ICMT 2018 received 24 submissions. Each submission was reviewed by three Program Committee members. After an online discussion period, the Program Committee accepted nine papers as part of the conference program. These papers included research, application, and tool demonstration papers presented in the context of four sessions on verification of model transformations, model transformation tools, transformation reuse, and graph transformations. In addition, we had an invited paper by our keynote speaker, Markus Voelter, about the design and evolution of KernelF.

A lot of people contributed to the success of ICMT 2018. We are grateful to the Program Committee members and reviewers for the timely delivery of thorough reviews and constructive discussions under a very tight review schedule. We also thank

Markus Voelter for his excellent keynote talk. Last but not least, we would like to thank the authors, who constitute the heart of the model transformation community, for their enthusiasm and hard work.

The organization of STAF made for a successful conference. We thank the local organizers, and in particular the general chairs, Marc Pantel and Jean-Michel Bruel; and we thank the Ecole Nationale Supérieure d'Electrotechnique, Electronique, Hydraulique et Télécommunications (ENSEEIHT), the Institut National Polytechnique de Toulouse (Toulouse INP), and the Institut de Recherche en Informatique de Toulouse (IRIT) for hosting us and for their support.

June 2018

Arend Rensink
Jesús Sánchez Cuadrado

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