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Software Technologies: Applications and Foundations (STAF) is a federation of a number of the leading conferences on software technologies. It was formed after the end of the successful TOOLS federated event (http://tools.ethz.ch) in 2012, aiming to provide a loose umbrella organization for practical software technologies conferences, supported by a Steering Committee that provides continuity. The STAF federated event runs annually; the conferences that participate can vary from year to year, but all focus on practical and foundational advances in software technology. The conferences address all aspects of software technology, from object-oriented design, testing, mathematical approaches to modeling and verification, model transformation, graph transformation, model-driven engineering, aspect-oriented development, and tools.

STAF 2014 was held at the University of York, UK, during July 21–25, 2014, and hosted four conferences (ICMT 2014, ECMFA 2014, ICGT 2014 and TAP 2014), a long-running transformation tools contest (TTC 2014), 8 workshops affiliated with the conferences, and (for the first time) a doctoral symposium. The event featured 6 internationally renowned keynote speakers, and welcomed participants from around the globe.

The STAF Organizing Committee thanks all participants for submitting and attending, the program chairs and Steering Committee members for the individual conferences, the keynote speakers for their thoughtful, insightful, and engaging talks, the University of York and IBM UK for their support, and the many ducks who helped to make the event a memorable one.

July 2014

Richard F. Paige
General Chair
STAF 2014
ICGT 2014 was the 7th International Conference on Graph Transformation held during July 22–24, 2014 in York. The conference was affiliated with STAF (Software Technologies: Applications and Foundations) and it took place under the auspices of the European Association of Theoretical Computer Science (EATCS), the European Association of Software Science and Technology (EASST), and the IFIP Working Group 1.3, Foundations of Systems Specification.

ICGT 2014 continued the series of conferences previously held in Barcelona (Spain) in 2002, Rome (Italy) in 2004, Natal (Brazil) in 2006, Leicester (UK) in 2008, Enschede (The Netherlands) in 2010, and in Bremen (Germany) in 2012, following a series of 6 International Workshops on Graph Grammars and Their Application to Computer Science from 1978 to 1998.

Dynamic structures are a major cause for complexity when it comes to model and reason about systems. They occur in software architectures, configurations of artefacts such as code or models, pointer structures, databases, networks, etc. As interrelated elements, which may be added, removed, or change state, they form a fundamental modeling paradigm as well as a means to formalize and analyze systems. Applications include architectural reconfigurations, model transformations, refactoring, and evolution of a wide range of artefacts, where change can happen either at design or at run time. Dynamic structures occur also as part of semantic domains or computational model for formal modeling languages.

Based on the observation that all these approaches rely on very similar notions of graphs and graph transformations, theory and applications of graphs, graph grammars and graph transformation systems have been studied in our community for more than 40 years. The conference aims at fostering interaction within this community as well as attracting researchers from other areas to join us, either in contributing to the theory of graph transformation or by applying graph transformations to already known or novel areas, such as self-adaptive systems, overlay structures in cloud or P2P computing, advanced computational models for DNA computing, etc.

The conference program included three joint sessions with ICMT 2014, the 7th International Conference on Model Transformation, where two of these sessions were composed of papers accepted at ICMT 2014 and one of papers accepted for ICGT 2014. The proceedings of ICGT 2014 consist of one invited paper, titled “Parameterized Verification and Model Checking for Distributed Broadcast Protocols” by Giorgio Delzanno, and 17 contributions, which were selected following a thorough reviewing process.

The volume starts with the invited paper. The further papers are divided into the thematic topics verification, meta-modeling and transformations, rewriting
and applications in biology, graph languages and graph transformation, and applications.

We are grateful to the University of York and the STAF Conference for hosting ICGT 2014, and would like to thank the authors of all submitted papers, the members of the Program Committee as well as the subreviewers.

Particular thanks go to Andrea Corradini for organizing the Doctoral Symposium as part of the STAF Conference and the organizers of the satellite workshops related to ICGT 2014 and affiliated with the STAF Conference:

- 5th International Workshop on Graph Computation Models (GCM 2014), organized by Rachid Echahed, Annegret Habel, and Mohamed Mosbah
- 8th International Workshop on Graph-Based Tools (GraBaTs 2014), organized by Matthias Tichy and Bernhard Westfechtel

We are also grateful to Leen Lambers for her support as publicity chair. Finally, we would like to acknowledge the excellent support throughout the publishing process by Alfred Hofmann and his team at Springer, and the helpful use of the EasyChair conference management system.

July 2014

Holger Giese
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<table>
<thead>
<tr>
<th>X</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radke, Hendrik</td>
<td>Yan, Hui</td>
</tr>
<tr>
<td>Raesch, Simon-Lennert</td>
<td>Zambon, Eduardo</td>
</tr>
</tbody>
</table>
# Table of Contents

## Invited Contribution

Parameterized Verification and Model Checking for Distributed Broadcast Protocols .............................................. 1  
*Giorgio Delzanno*

## Verification

Tableau-Based Reasoning for Graph Properties ...................... 17  
*Leen Lambers and Fernando Orejas*

Verifying Monadic Second-Order Properties of Graph Programs ...... 33  
*Christopher M. Poskitt and Detlef Plump*

Generating Abstract Graph-Based Procedure Summaries for Pointer Programs .......................................................... 49  
*Christina Jansen and Thomas Noll*

Generating Inductive Predicates for Symbolic Execution of Pointer-Manipulating Programs ........................................ 65  
*Christina Jansen, Florian Göbe, and Thomas Noll*

Attribute Handling for Generating Preconditions from Graph Constraints ................................................................. 81  
*Frederik Deckwerth and Gergely Varró*

## Meta-Modelling and Model Transformations

From Core OCL Invariants to Nested Graph Constraints .............. 97  
*Thorsten Arendt, Annegret Habel, Hendrik Radke, and Gabriele Taentzer*

Specification and Verification of Graph-Based Model Transformation Properties ......................................................... 113  
*Gehan M.K. Selim, Levi Lúcio, James R. Cordy, Juergen Dingel, and Bentley J. Oakes*

A Static Analysis of Non-confluent Triple Graph Grammars for Efficient Model Transformation ........................................ 130  
*Anthony Anjorin, Erhan Leblebici, Andy Schürr, and Gabriele Taentzer*
Rewriting and Applications in Biology

Transformation and Refinement of Rigid Structures ..................... 146
  Vincent Danos, Reiko Heckel, and Pawel Sobocinski

Reversible Sesqui-Pushout Rewriting ...................................... 161
  Vincent Danos, Tobias Heindel, Ricardo Honorato-Zimmer, and
  Sandro Stucki

On Pushouts of Partial Maps ............................................. 177
  Jonathan Hayman and Tobias Heindel

Graph Languages and Graph Transformation

The Subgraph Isomorphism Problem on a Class of Hyperedge
  Replacement Languages .................................................. 192
  H.N. de Ridder and N. de Ridder

Canonical Derivations with Negative Application Conditions .......... 207
  Andrea Corradini and Reiko Heckel

Van Kampen Squares for Graph Transformation .......................... 222
  Harald König, Michael Löwe, Christoph Schulz, and Uwe Wolter

Applications

Graph Transformation Meets Reversible Circuits: Generation,
  Evaluation, and Synthesis ............................................... 237
  Hans-Jörg Kreowski, Sabine Kuske, Aaron Lye, and Melanie Luderer

Towards Process Mining with Graph Transformation Systems .......... 253
  H.J. Sander Bruggink

Jerboa: A Graph Transformation Library for Topology-Based
  Geometric Modeling ...................................................... 269
  Hakim Belhaouari, Agnès Arnauld, Pascale Le Gall, and
  Thomas Bellet

Author Index ................................................................. 285