



Introduction to the special section of the 20th International Conference on Model-Driven Engineering Languages and Systems (MODELS'17)

Jeff Gray¹ · Vinay Kulkarni²

Received: 30 December 2019 / Accepted: 31 December 2019 / Published online: 13 January 2020
© Springer-Verlag GmbH Germany, part of Springer Nature 2020

1 Introduction

Since its inception in 1998, MODELS has been the premier conference series for model-based software and systems engineering, covering all aspects of modeling, from languages and methods to tools and applications. MODELS'17 represented the 20th edition of the conference and was held in Austin, Texas, USA, during the week of September 17–22, 2017. Don Batory was the General Chair, with Jeff Gray (Foundations Track Chair) and Vinay Kulkarni (MDE in Practice Track Chair) leading the organization of the program committee. Three keynote presentations were shared at MODELS'17 by Jeannie Falcon (National Instruments), Ira Baxter (Semantic Designs), and Adam Porter (University of Maryland). For the first time, the 2017 edition of MODELS offered an Artifact Evaluation option, led by Andrzej Wasowski (MODELS'18 General Chair) and Vadim Zaytsev.

MODELS'17 received 121 total submissions, including 85 Foundations Track papers (68 Technical, 9 New Ideas, and 8 Vision papers) and 36 Practice and Innovation papers. After review and discussion among the Program Committee and the Program Board, 24 papers were accepted to the Foundations Track (17 Technical, 3 New Ideas, and 4 Vision papers), for an acceptance rate of 28%. Among the 36 papers submitted to the Practice and Innovation Track, 9 papers were accepted overall for an acceptance rate of 25%. For

the first time, the MODELS Program Board met virtually to discuss the reviews submitted by the Program Committee and to select the accepted papers.

Out of the accepted conference papers, we asked the Program Committee for recommendations of the best papers to be considered for this special section. We invited the authors of three papers to submit extended versions of their papers. This invitation was based on a careful evaluation of all papers by the Program Board and Program Committee. The authors of these best papers were then asked to prepare a substantial improved and extended version for this special section. Each article underwent a full journal review process and authors received anonymous feedback in two rounds of reviewing from three expert reviewers per paper. The three accepted papers are described in the next section.

2 Selected papers

Three papers were accepted in this special section, two from the Foundations Track and one from the MDE in Practice Track. Altogether, they are representative examples of the diversity, depth, and maturity of the current research in model-driven engineering.

A summary of each paper is provided below:

- The paper entitled “Maintaining consistency in networks of models: bidirectional transformations in the large” was authored by Pedita Stevens and presented as a Foundations Track paper at MODELS'17. This paper describes an investigation into military relations and how consistency restoration may be applied to a network of models and their relationships.
- The paper entitled “Modeling languages in Industry 4.0: an extended systematic mapping study” was co-authored by Adreas Wortmann, Olivier Barais, Benoit Combemale, and Manuel Wimmer and presented as a Founda-

✉ Jeff Gray
gray@cs.ua.edu
http://gray.cs.ua.edu

Vinay Kulkarni
vinay.vkulkarni@tcs.com

¹ Department of Computer Science, University of Alabama, Tuscaloosa, AL, USA

² Research & Innovation, Tata Consultancy Services, Pune, India

tions Track paper at MODELS' 17. Their paper describes a systematic mapping study of 408 relevant publications on the topic of modeling languages and modeling techniques used in Industry 4.0. The authors present a map of the research landscape on modeling languages and techniques for Industry 4.0.

- The paper entitled “Bridging proprietary modelling and open-source model management tools: the case of PTC Integrity Modeller and Epsilon” was co-authored by Athanasios Zolotas, Horacio Hoyos Rodriguez, Stuart Hutchesson, Beatriz Sanchez Pina, Alan Grigg, Mole Li, Dimitris Kolovos, and Richard Paige and presented as an MDE in Practice Track paper at MODELS' 17. Their paper introduces a bridge between an open-source modeling framework and a closed-source modeling tool to extend the commercial tool with benefits of new state-

of-the-art research capabilities. An example is presented that bridges a proprietary UML tool with a research tool to demonstrate safety-critical system modeling requirements.

We hope that you enjoy the extended contributions of these MODELS' 17 papers.

Jeff Gray and Vinay Kulkarni

December 2019

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.