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Silvia Bonomi · Etienne Rivière (Eds.)

# Distributed Applications and Interoperable Systems

18th IFIP WG 6.1 International Conference, DAIS 2018  
Held as Part of the 13th International Federated Conference  
on Distributed Computing Techniques, DisCoTec 2018  
Madrid, Spain, June 18–21, 2018  
Proceedings

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# Foreword

The 13th International Federated Conference on Distributed Computing Techniques (DisCoTec) took place in Madrid, Spain, during June 18–21, 2018. The DisCoTec series is one of the major events sponsored by the International Federation for Information Processing (IFIP). It comprises three conferences:

- COORDINATION, the IFIP WG6.1 International Conference on Coordination Models and Languages (the conference celebrated its 20th anniversary in 2018)
- DAIS, the IFIP WG6.1 International Conference on Distributed Applications and Interoperable Systems (the conference is in its 18th edition)
- FORTE, the IFIP WG6.1 International Conference on Formal Techniques for Distributed Objects, Components and Systems (the conference is in its 38th edition)

Together, these conferences cover a broad spectrum of distributed computing subjects, ranging from theoretical foundations and formal description techniques to systems research issues. Each day of the federated event began with a plenary speaker nominated by one of the conferences.

In addition to the three main conferences, two satellite events took place during June 20–21, 2018:

- ICE, the Workshop on Interaction and Concurrency Experience (in its 11th edition)
- FADL, Workshop on Foundations and Applications of Distributed Ledgers (this was the first year that the workshop took place)

I would like to thank the Program Committee chairs of the different events for their help and cooperation during the preparation of the conference and the Steering Committee of DisCoTec for its guidance and support. The organization of DisCoTec 2018 was only possible thanks to the dedicated work of the Organizing Committee, including the organization chairs, Jesús Correas and Sonia Estévez (Universidad Complutense de Madrid, Spain), the publicity chair, Ivan Lanese (University of Bologna/Inria, Italy), the workshop chairs, Luis Llana and Ngoc-Thanh Nguyen (Universidad Complutense de Madrid, Spain and Wrocław University of Science and Technology, Poland, respectively), the finance chair, Mercedes G. Merayo (Universidad Complutense de Madrid, Spain), and the webmaster, Pablo C. Cañizares (Universidad Complutense de Madrid, Spain). Finally, I would like to thank IFIP WG6.1 for sponsoring this event, Springer’s *Lecture Notes in Computer Science* team for their support and sponsorship, and EasyChair for providing the reviewing infrastructure.

June 2018

Manuel Núñez

## Message from the Program Chairs

This volume contains the papers presented at DAIS 2018, the 18th IFIP International Conference on Distributed Applications and Interoperable Systems, sponsored by the IFIP (International Federation for Information Processing) and organized by the IFIP Working Group 6.1.

DAIS was held during June 18–21, 2018 in Madrid, Spain, as part of DisCoTec, the 13th International Federated Conference on Distributed Computing Techniques, together with FORTE (the 38th IFIP International Conference on Formal Techniques for Distributed Objects, Components and Systems) and COORDINATION (the 20th IFIP International Conference on Coordination Models and Languages).

There were 26 submissions for DAIS. Each submission was reviewed by four Program Committee members. The committee decided to accept ten full papers and two work-in-progress short papers. The accepted papers cover a representative range of the historical interests of the conference series, as well as recent and innovative topics. The proceedings include solid distributed systems contributions for autonomous systems, automatic adaptation, interoperability, dependability, and performance. These contributions target a wide range of application domains, including stream processing, video dissemination, storage, privacy protection, and large-scale orchestration. The two work-in-progress papers cover the detection of malicious activity in the domains of microservice-based applications and online social networks.

The conference was made possible by the work and cooperation of many people working in several committees and organizations that are listed in these proceedings. In particular, we thank the Program Committee members for their commitment and thorough reviews and for their active participation in the discussion phase, and all the external reviewers for their help in evaluating submissions. We would also like to thank Paolo Romano, our invited keynote speaker. Finally, we also thank the DisCoTec general chair, Manuel Núñez, the organization chairs, Jesús Correas and Sonia Estévez, and their teams, and the DAIS Steering Committee chair, Rui Oliveira, for their constant availability, support, and guidance. Finally, we thank the authors and maintainers of EasyChair for building such an invaluable tool for editorial management.

April 2018

Silvia Bonomi  
Etienne Rivière

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