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# Advances in Artificial Intelligence – IBERAMIA 2016

15th Ibero-American Conference on AI  
San José, Costa Rica, November 23–25, 2016  
Proceedings

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# Preface

This volume of *Lecture Notes in Artificial Intelligence* contains the papers presented at the 15th Ibero-American Conference on Artificial Intelligence (IBERAMIA 2016), held at San José, Costa Rica, during November 23–25, 2016.

IBERAMIA is a biennial international conference supported by the main Ibero-American societies of artificial intelligence. It is the leading symposium where the Ibero-American AI community comes together to share research results and experiences with researchers in Artificial Intelligence from all over the world. It has been held uninterruptedly since 1988, and with the years, it has expanded its scope to become a well-recognized international conference in the AI field, with papers published in English by Springer in the LNCS/LNAI series since the sixth edition (Lisbon 1998).

The technical structure of this year's conference was composed of the main technical sessions, keynote talks, and workshops. The organizational structure of the scientific program of IBERAMIA 2016 was as follows: the conference was organized along several areas of AI, each coordinated by one or two area chairs (ACs) who are recognized experts in their fields of expertise. ACs were responsible for selecting the Program Committee (PC) members. In total, IBERAMIA 2016 involved 18 ACs, more than 150 PC members (from 25 countries, including 15 that were outside the Ibero-American geographical area), and a considerable number of additional reviewers.

IBERAMIA 2016 received 75 papers from 31 different countries, attesting to the truly international nature of the conference. After review by the international PC, 34 papers were accepted for presentation and publication in this volume. These papers are structured into the following nine sections:

- Knowledge Engineering, Knowledge Representation and Probabilistic Reasoning
- Agent Technology and Multi-agent Systems
- Planning and Scheduling
- Natural Language Processing
- Machine Learning
- Big Data, Knowledge discovery and Data Mining
- Computer Vision and Pattern Recognition
- Computational Intelligence and Soft Computing
- AI in Education, Affective Computing, and Human–Computer Interaction

IBERAMIA 2016 was honored by the participation of three outstanding women as keynote speakers: Emilia Mendes from the Blekinge Institute of Technology, Sweden, Rada Mihalcea from the University of Michigan, USA, and Rosa Maria Vicari from the Federal University of Rio Grande do Sul, Brazil. We thank them for giving us such excellent keynote lectures.

We would like to thank: the authors for submitting their work to IBERAMIA; the ACs, PC members, and additional reviewers for their hard work and valuable time; the sponsors; and Springer for agreeing to print this volume. Also, we thank Francisco

Garijo and Federico Barber from IBERAMIA's Executive Board for their continuous support in administrative matters, as well as for supporting the website of the conference. We also want to acknowledge EasyChair for the facilities provided to support the submission and review of the papers, as well as for the preparation of the proceedings.

Finally, it is important to mention that nothing would have been possible without the initiative and dedication of the Organizing Committee from the Universidad Nacional de Costa Rica. We are very grateful to all the people who helped in the large variety of organizing tasks.

November 2016

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