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Advances in Artificial Intelligence

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Preface

This volume contains the selected papers presented at CAEPIA 2018, XVIII Conference of the Spanish Association for Artificial Intelligence, during October 23–26, 2018, held in Granada, Spain. The CAEPIA series of conferences is a biennial event that started in 1985. Previous editions took place in Alicante, Málaga, Murcia, Gijón, San Sebastián, Santiago de Compostela, Sevilla, La Laguna, Madrid, Albacete, and Salamanca.

CAEPIA is a forum open to researchers from all over the world to present and discuss their latest scientific and technological advances in Artificial Intelligence (AI). Authors were kindly requested to submit unpublished original papers describing relevant achievements on AI topics. Either formal, methodological, technical, or applied research were welcome.

Several federated congresses and workshops related to relevant AI tracks took place within CAEPIA: XIX Spanish Congress on Fuzzy Logic and Technologies (ESTYLF); XIII Spanish Congress on Metaheuristics, Evolutionary and Bioinspired Algorithms (MAEB); IX Symposium of Theory and Applications of Data Mining (TAMIDA); V Congress of the Spanish Society for Video Game Science (CoSECiVi); IV Symposium on Information Fusion and Ensemble Learning (FINO), II Workshop in Big Data and Scalable Data Analytics (BigDADE); I Workshop in Deep Learning (DEEPL); I Workshop on Applications of Artificial Intelligence for Industry 4.0 (IndustrIA 4.0); I Workshop on Data Science in Social Media (CiDReS); and I Workshop of Spanish AI Research Groups in Biomedicine (IABiomed).

Within CAEPIA 2018, the Doctoral Consortium (DC) was also organized. It is a forum for PhD students to interact with other researchers by discussing their PhD advances and plans. With the aim of highlighting the practical importance of AI, the 3rd Competition on Mobile Apps with AI Techniques was held at CAEPIA as well as the AI Dissemination Video Competition. CAEPIA 2018 aimed to maintain the high quality standards of previous editions.

Apart from the presentation of technical full papers and the DC, the scientific program of CAEPIA 2018 included an app contest and a track on outstanding recent papers (Key Works: KW) already published in renowned journals or forums.

CAEPIA aims to be recognized as a flagship conference in AI. This implies to achieve high-quality standards in the review process. In particular, the total number of submissions to CAEPIA 2018 was 240 (neither DC nor KW submissions were included in those 240 contributions since their review process was different). Only 36 outstanding manuscripts were selected for this volume after a thorough review process that involved at least 3 reviews per submission. This involved a lot of tough work by the CAEPIA 2018 Program Committee (PC) that was really appreciated. The reviewers judged the overall quality of the submitted manuscripts, together with the quality of the methodology employed, the soundness of the conclusions, the significance of the topic, the clarity and the organization, among other evaluation fields. The reviewers stated

their confidence in the subject area in addition to detailed written comments. On the basis of the reviews, the PC Chairs proposed the final decisions that were finally made by both the CAEPIA 2018 general chairman and the president of the Organizing Committee.

Likewise, CAEPIA 2018 invited five internationally renowned researchers for a plenary talk. Pedro Larrañaga (Technical University of Madrid, Spain) presented "Bayesian Networks in Action." Sergio Guadarrama (Google Research, USA) introduced "AI in Google: latest advances and tendencies." Carlos A. Coello (CINVESTAD-IPN, Mexico) focused on "Trends in Evolutionary Multiobjective Optimization Research." Joao Gama (University of Porto, Portugal) discussed on "Real-Time Data Mining." Finally, Humberto Bustince (Public University of Navarra, Spain) gave the talk "From Integrals to Pre-aggregations: Applications in Classification, the Computational Brain and Image Processing."

AEPIA and the organization of CAEPIA 2018 recognized the best PhD work submitted to the DC with a prize, as well as the best student and conference paper presented at CAEPIA 2018. Furthermore, CAEPIA 2018 also aimed to promote the presence of women in AI research. As in previous editions, the Frances Allen award recognized the two best AI PhD thesis defended by a woman during the last two years.

The editors of this volume would like to thank many people who contributed to the success of CAEPIA 2018: authors, members of Scientific and Program Committees, invited speakers, etc. We would like to especially thank the tireless work of the Organizing Committee, our local sponsors (Andalusian Research Institute on Data Science and Computational Intelligence – DaSCI and the University of Granada), the Springer team, and AEPIA for their support.

Last but not least, on behalf of the CAEPIA 2018 participants, Francisco Herrera (CAEPIA 2018 General Chair) and Sergio Damas (CAEPIA 2018 President of the Organizing Committee), would like to especially thank Prof. Enric Trillas (CAEPIA 2018 Honorary Chair) for his pioneering work in AI, his numerous initiatives to promote AI in Spain, and his friendship.

July 2018

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