

# Preface

In many industrial applications, there is a real need to develop intelligent systems that deal with complex, open, and dynamic information systems. These information systems often involve a huge amount of data that may be incomplete, heterogeneous, pervaded with uncertainty, and inconsistent with available ontologies or expert knowledge.

This volume, entitled *Advances in Artificial Intelligence: From Theory to Practice*, contains the papers presented at the 30th International Conference on Industrial, Engineering, and Other Applications of Applied Intelligent Systems (IEA/AIE 2017) which was held in Arras (France), during June 27–30, 2017. This edition continues the tradition of emphasizing applications of applied intelligent systems to solve real-life problems in all areas including engineering, science, industry, automation and robotics, business and finance, health care, agronomy, anomaly detection, human–machine interactions, etc.

In this 30th year of the IEA/AIE conference, we received 180 papers for the main and the special tracks. We accepted 70 papers as full papers and 45 papers as short papers. All accepted papers were carefully reviewed by Program Committee members. The accepted papers cover a wide array of applied artificial intelligence topics including knowledge representation and reasoning, machine learning, argumentation systems, ontological reasoning, computer animation, non-monotonic and uncertainty-based reasoning, graphical models, decision support systems, recommendation systems, meta-heuristics, planning and scheduling, practical problem solving, etc.

In addition to the list of accepted papers, the conference greatly benefited from invited lectures by three world-leading researchers in applied artificial intelligence: (a) Jian J. Zhang (Professor of Computer Graphics at the National Centre for Computer Animation, Bournemouth University, UK), who gave a talk on “Creativity for Research – An Analogy Model”; (b) Umberto Straccia (Senior Researcher at the Istituto di Scienza e Tecnologie dell’ Informazione (ISTI) of the Italian National Council of Research CNR), who gave a talk on “Fuzzy Semantic Web Languages and Beyond”; and (c) Leendert van der Torre (Professor of Computer Science at University of Luxembourg, Luxembourg), who gave a talk on “Rational Enterprise Architecture.”

In addition to the main track, the following special tracks were organized:

- Agronomy and Artificial Intelligence
- Anomaly Detection
- Applications of Argumentation
- Conditionals and Non-monotonic Reasoning
- De Finetti’s Heritage in Uncertainty and Decision-Making
- Computational Intelligence in Databases
- Graphical Models: From Theory to Applications
- Innovative Applications of Textual Analysis Based on AI
- Intelligent Systems in Health Care and mHealth for Health Outcomes

Additionally, two affiliated workshops were also organized:

- Workshop on ASP Technologies for Querying Large-Scale Multiple-Source Heterogeneous Web Information, WASPIQ 2017 (co-chairs Odile Papini, Salem Benferhat, Laurent Garcia, and Marie-Laure Mugnier)
- Computer Animation and Artificial Intelligence, CAnimAI (co-chairs The Duy Bui, Sylvain Lagrue, Hongchuan Yu, Huu-Hoa Nguyen, Pradorn Sureephong, Mohd Shafry Mohd Rahim, and Karim Tabia)

We would like to thank the following organizations/projects for their support of the conference:

- International Society of Applied Intelligence (ISAI)
- University of Artois, France
- Centre Nationale de la Recherche Scientifique (CNRS), France
- The ANR (French National Research Agency) project ASPIQ (ASP Technologies for Querying Large-Scale Multisource Heterogeneous Web Information)
- The European RISE (Research and Innovation Staff Exchange) project AniAge (High-Dimensional Heterogeneous Data-Based Animation Techniques for South-east Asian Intangible Cultural Heritage Digital Content).

We would like to thank all the members of the Program Committees (from the main and the special tracks), as well as the additional reviewers, who devoted their time for the reviewing process. We thank all the authors of submitted papers, the invited speakers, and the participants for their scientific contributions to the conference. Finally, we would like to thank all the Organizing Committee members (with a special thanks to Sylvain Lagrue, from CRIL, CNRS-University of Artois) for their excellent local organization, which made the IEA/AIE-2017 conference a success.

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