

Intelligence Systems: Trends and Challenges

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■ *This report summarizes the events of the 30th International Conference on Industrial, Engineering, and Other Applications of Applied Intelligent Systems (IEA/AIE-2017), which was held in Arras, France, June 25–30, 2017.*

The annual International Conference on Industrial, Engineering, and Other Applications of Applied Intelligent Systems was held for the 30th time on June 25–30, 2017, in Arras, France. The 2017 conference was sponsored by the International Society of Applied Intelligence (ISAI) and held in cooperation with AAAI, SIGAI/ACM, and several other international organizations.

The first IEA/AIE conference was organized in 1988 in Tullahoma, Tennessee. Since that time, the conference has been held internationally in many countries including Germany, Scotland, Australia, Spain, Egypt, Hungary, England, Italy, France, Japan, Poland, China, Taiwan, Netherlands, and South Korea. The conference has always been sponsored by ISAI and all conferences have been held in cooperation with AAAI. The conference provides a medium for presenting, publishing, and communicating about scientific research and

technological achievements accomplished by the international community.

The focus of the 2017 conference was on research advances in new and innovative intelligent systems' methodologies and their applications in solving real-life, complex problems. In many worldwide 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. IEA/AIE-2017 emphasized 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, among others.

The conference, received 180 papers for the main and the special tracks. Seventy papers were accepted 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 constraints, planning, and optimization; data mining and machine learning; sensors, signal processing, and data fusion; recommender system; decision support systems; knowledge representation and reasoning; navigation, control, and autonomous agents; sentiment analysis and social media; games, computer vision, and animation; and uncertainty management.

The conference also organized nine poster sessions, which were well attended and enjoyed interactive discussions.

Keynote Speakers

The conference greatly benefited from invited talks by three world-leading researchers in applied artificial intelligence. Jian J. Zhang (a professor of computer graphics at the National Centre for Computer Animation, Bournemouth University, UK) gave a talk on Creativity for Research — an Analogy Model. Umberto Straccia (a senior researcher at the Istituto di Scienza e Tecnologie dell' Informazione (ISTI) of the Italian National Council of Research CNR) gave a talk on Fuzzy Semantic Web Languages and Beyond. Finally, Leendert van der Torre (a professor of computer science at University of Luxembourg), spoke on Rational Enterprise Architecture.

Special Sessions

In addition to the main track, eight special tracks were organized: Agronomy and Artificial Intelligence, Anomaly Detection, Applications of Argumentation, Conditionals and Nonmonotonic Reasoning, De Finetti's Heritage in Uncertainty and Decision-Making, Graphical Models: From Theory to Applications,

Innovative Applications of Textual Analysis Based on AI, and Intelligent Systems in Health Care and mHealth for Health Outcomes

IEA/AIE-2017 also organized two workshops: ASP Technologies for Querying Large-Scale Multiple-Source Heterogeneous Web Information, cochaired by Odile Papini, Salem Benferhat, Laurent Garcia, and Marie-Laure Mugnier; and Computer Animation and Artificial Intelligence, cochaired by The Duy Bui, Sylvain Lagrue, Hongchuan Yu, Huu-Hoa Nguyen, Pradorn Sureephong, Mohd Shafry Mohd Rahim, and Karim Tabia.

Awards

IEA/AIE-2017 selected three papers for the best-paper awards. The Best Paper Award was presented to Christoph Beierle and Steven Kutsch for their paper Regular and Sufficient Bounds of Finite Domain Constraints for Skeptical C-Inference. The first runner-up was Kennedy Kambona, Thierry Renaux, and Wolfgang De Meuter, for their paper Efficient Matching in Heterogeneous Rule Engines. The second runner-up was Yuyan Sun, Yuxuan Liang, Zizhen Zhang, and Jiahai Wang, for their paper M-NSGA-II: A Memetic Algorithm for Vehicle Routing Problem with Route Balancing. Both runners-up were given Best Paper Award certificates, and all award recipients were presented with gifts.

The best student paper award was presented to Lina Abassi and Imen Boukhris for their paper A Gold Standards-Based Crowd Label Aggregation Within the Belief Function Theory.

Conclusion

Authors from more than 30 countries submitted papers. Selected papers were presented and published in *Artificial Intelligence: From Theory to Practice* published by Springer Verlag in its Lecture Notes in Artificial Intelligence series. The next conference will be held June 25–28, 2018, in Montréal, Québec, Canada.

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