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Special Issue: Selected Papers from AI^3 2017, the 1st Workshop on Advances in Argumentation in Artificial Intelligence

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This section collects the extended and revised versions of the best contributions presented at AI^3 2017[1], the 1st Workshop on Advances In Argumentation In Artificial Intelligence, co-located with the XVI International Conference of the Italian Association for Artificial Intelligence (AI*IA 2017) held in Bari, on November 16 – 17, 2017.

Argumentation is the study of the processes and activities involving the production and exchange of arguments, where arguments are attempts to persuade someone or something by giving reasons for accepting a particular conclusion as evident. As such, argumentation provides procedures for making and explaining decisions and is able to capture diverse kinds of reasoning and dialogue activities in a formal but still intuitive way, enabling the integration of different specific techniques and the development of trustable applications.

For these reasons, over the last two decades formal argumentation has become a main research topic in Artificial Intelligence. Given that the study of argumentation is inherently interdisciplinary, the goal of the workshop was to stimulate discussions and promote scientific collaboration among researchers involved in the field of argumentation from different perspectives, including computational, linguistic, philosophical and psychological aspects.

The workshop aimed at bringing together researchers from the Italian community of argumentation, in order to give a group identity to several researchers in Italy (and Italian researchers abroad) both to discuss foundations and issues in argumentation and to present challenges and problems for which argumentation may represent a viable AI-paradigm. As a nice surprise, the workshop received particular attention from researchers outside Italy, who submitted several papers.

Each submission underwent a peer-review process. The workshop involved 13 papers accepted for oral presentation, an account of which is given in this volume. Accepted papers dealt with various aspects of argumentation:

- Abstract argumentation,
- Structured argumentation,
- Dialogues, real world arguments and applications.

At the workshop, 13 papers were presented and the authors of 4 papers had the possibility to submit an extended version of their paper for possible publication in this special issue. After several rounds of reviews, the following two papers were selected.

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[1]http://aiia2017.di.uniba.it/ai3-2017/

A Meta-Argumentation Approach for the Efficient Computation of Stable and Preferred Extensions in Dynamic Bipolar Argumentation Frameworks by Gianvincenzo Alfano, Sergio Greco and Francesco Parisi introduces an incremental approach for efficiently recomputing sets of accepted arguments in a dynamic Bipolar Argumentation Frameworks (BAFs), under the preferred and stable semantics.

Credulous and skeptical acceptability in probabilistic abstract argumentation: complexity results by Bettina Fazzinga, Sergio Flesca and Filippo Furfaro presents some results concerning the computational complexity of credulous and skeptical acceptability of arguments in Probabilistic Abstract Argumentation (PrAAF).

We would like to thank the authors who submitted papers to this special issue and express our appreciation for all the submissions, which were impressive, both in quantity and quality. We are very grateful to the AI^3 2017 Programme Committee members and to the external reviewers listed below for their high quality reviews, which provided many valuable suggestions to the authors. Finally, we would like to express our gratitude, to Fabrizio Riguzzi, Editor in Chief of *Intelligenza Artificiale*, for hosting this special issue.

AI^3 2017 and AI^3 2017 Special Issue Programme Committee Members

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