Workshop Notes

Sixth International Workshop
"What can FCA do for Artificial Intelligence?"
FCA4AI 2018

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http://fca4ai.hse.ru/2018/

Preface

The five preceding editions of the FCA4AI Workshop showed that many researchers working in Artificial Intelligence are deeply interested by a well-founded method for classification and mining such as Formal Concept Analysis (see `http://www.fca4ai.hse.ru/`). The first edition of FCA4AI was co-located with ECAI 2012 in Montpellier, the second one with IJCAI 2013 in Beijing, the third one with ECAI 2014 in Prague, the fourth on with IJCAI 2015 in Buenos Aires, and finally the fifth one with ECAI 2016 in The Hague. All the proceedings of the preceding editions are published as CEUR Proceedings (`http://ceur-ws.org/Vol-939/`, `http://ceur-ws.org/Vol-1058/`, `http://ceur-ws.org/Vol-1257/`, and `http://ceur-ws.org/Vol-1430/`, and `http://ceur-ws.org/Vol-1703/`).

This year, the workshop has again attracted many different researchers working on actual and important topics, e.g. theory, extensions of FCA (MDL), classification, mining of linked data, annotation, biclustering, recommendation and applications. This shows the diversity and the richness of the relations between FCA and AI.

Formal Concept Analysis (FCA) is a mathematically well-founded theory aimed at data analysis and classification. FCA allows one to build a concept lattice and a system of dependencies (implications) which can be used for many Artificial Intelligence needs, e.g. knowledge discovery, learning, knowledge representation, reasoning, ontology engineering, as well as information retrieval and text processing. As we can see, there are many "natural links" between FCA and Artificial Intelligence. Recent years have been witnessing increased scientific activity around FCA, in particular a strand of work emerged that is aimed at extending the possibilities of FCA w.r.t. knowledge processing, such as work on pattern structures and relational context analysis. These extensions are aimed at allowing FCA to deal with more complex than just binary data, both from the data analysis and knowledge discovery points of view and as well from the knowledge representation point of view, including, e.g., ontology engineering. All these investigations provide new possibilities for Artificial Intelligence activities in the framework of FCA. Accordingly, in this workshop, we are interested in main issues such as:

- How can FCA support AI activities such as knowledge processing (knowledge discovery, knowledge representation and reasoning), learning (clustering, pattern and data mining), natural language processing, and information retrieval.
- How can FCA be extended in order to help Artificial Intelligence researchers to solve new and complex problems in their domains.

The workshop is dedicated to discuss such issues. This year, the papers submitted to the workshop were carefully peer-reviewed by three members of the program committee and 11 papers with the highest scores were selected. We thank all the PC members for their reviews and all the authors for their contributions.

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Contents