Workshop Notes

12th International Workshop

"What can FCA do for Artificial Intelligence?"

FCA4AI 2024

27th European Conference on Artificial Intelligence

ECAI 2024

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Preface

The eleven preceding editions of the FCA4AI Workshop showed that many researchers working in Artificial Intelligence are deeply interested in a well-founded method for classification and data mining such as Formal Concept Analysis (see `https://upriss.github.io/fca/fca.html`).

The FCA4AI Workshop Series started with ECAI 2012 (Montpellier) and the last edition was co-located with IJCAI 2023 (Macao, China). The FCA4AI workshop has now a long history and all proceedings are available as CEUR proceedings (see `http://ceur-ws.org/`, volumes 939, 1058, 1257, 1430, 1703, 2149, 2529, 2729, 2972, 3233, and 3489). This year, the workshop has again attracted researchers from different countries working on actual and important topics related to FCA, showing 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, i.e., implications and association rules, which can be used for many AI needs, e.g. knowledge discovery, machine learning, knowledge representation and reasoning, natural language and text processing. Recent years have been witnessing increased scientific activity around FCA. In particular an important line of work is aimed at extending the possibilities of FCA w.r.t. data and knowledge processing, and dealing with complex data. These extensions open new directions for AI practitioners. Accordingly, the workshop will investigate the following issues:

- How can FCA support AI activities such as knowledge discovery, knowledge representation and reasoning, machine learning, natural language processing, information retrieval...
- How can FCA be extended for helping AI researchers to solve new and complex problems, in particular how to combine FCA, neural classifiers, and LLMs, for allowing interpretability and producing valuable explanations...

First of all we would like to thank all the authors for their contributions and all the PC members for their reviews and their precious collaboration. The papers submitted to the workshop were carefully peer-reviewed by three members of the program committee, and the revised papers were prepared according to the reviews. We hope that these proceedings will be practical and useful for partipants to the FCA4AI 2024 Workshop and as well to all readers who are intersted in the close relations existing between FCA and AI.

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