Workshop Notes

Eighth International Workshop
“What can FCA do for Artificial Intelligence?”
FCA4AI 2020

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http://fca4ai.hse.ru/2020/
Preface

The seven 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 data mining such as Formal Concept Analysis (see https://conceptanalysis.wordpress.com/fca/). FCA4AI was co-located with ECAI 2012 (Montpellier), IJCAI 2013 (Beijing), ECAI 2014 (Prague), IJCAI 2015 (Buenos Aires), ECAI 2016 (The Hague), IJCAI/ECAI 2018 (Stockholm), and IJCAI 2019 (Macao). The workshop has now a quite long history and all the proceedings are available as CEUR proceedings (see http://ceur-ws.org/, volumes 939, 1058, 1257, 1430, 1703, 2149, and 2529). This year, the workshop has again attracted many researchers from many 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 (implications and association rules) 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. 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, relational context analysis, and triadic analysis. These extensions are aimed at allowing FCA to deal with more complex data, both from the data analysis and knowledge discovery points of view. Actually these investigations provide new possibilities for AI practitioners within the framework of FCA. Accordingly, we are interested in the following issues:

- How can FCA support AI activities such as knowledge processing, i.e. knowledge discovery, knowledge representation and reasoning, learning, i.e. clustering, pattern and data mining, natural language processing, and information retrieval (non exhaustive list).

- 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 discussion of such issues. First of all we would like to thank all the authors for their contributions and all the PC members for their reviews and precious collaboration. This year, 24 papers were submitted and 14 were accepted for presentation at the workshop, out of which 6 short papers. The papers submitted to the workshop were carefully peer-reviewed by three members of the program committee. Finally, the order of the papers in the proceedings (see page 5) follows the program order (see http://fca4ai.hse.ru/2020/).

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<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Embedding Formal Contexts Using Unordered Composition</td>
<td>Esteban Marquer, Ajinkya Kulkarni and Miguel Couceiro</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Improving User’s Experience in Navigating Concept Lattices: An Approach Based on Virtual Reality</td>
<td>Christian Sacarea and Raul-Robert Zavaczki</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Dihypergraph decomposition: application to closure system representations</td>
<td>Lhouari Nourine and Simon Vilmin</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>Closure Structure: a Deeper Insight</td>
<td>Tatiana Makhalova, Sergei O. Kuznetsov and Amedeo Napoli</td>
<td>45</td>
</tr>
<tr>
<td>5</td>
<td>Towards Polynomial Subgroup Discovery by means of FCA</td>
<td>Aleksey Buzmakov</td>
<td>57</td>
</tr>
<tr>
<td>6</td>
<td>Representation of Knowledge Using Different Structures of Concepts</td>
<td>Dmitry Palchunov and Guhara Yakhyaeva</td>
<td>69</td>
</tr>
<tr>
<td>7</td>
<td>The study of the relationship between publications in social networks communities via formal concept analysis</td>
<td>Kristina Pakhomova and Alina Belova</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>Patterns via Clustering as a Data Mining Tool</td>
<td>Lars Lumpe and Stefan Schmidt</td>
<td>81</td>
</tr>
<tr>
<td>9</td>
<td>Interval-based sequence mining using FCA and the NextPriorityConcept algorithm</td>
<td>Salah Eddine Boukhetta, Jerémy Richard, Christophe Demko and Karell Bertet</td>
<td>91</td>
</tr>
<tr>
<td>10</td>
<td>Continuous Attributes for FCA-based Machine Learning</td>
<td>Dmitry Vinogradov</td>
<td>103</td>
</tr>
<tr>
<td>11</td>
<td>Granular Computing and Incremental Classification</td>
<td>Xenia Naidenova and Vladimir Parkhomenko</td>
<td>113</td>
</tr>
<tr>
<td>12</td>
<td>Concept Lattice and Soft Sets. Application to the Medical Image Analysis</td>
<td>Ana Christine Pascu, Laurent Nana and Mayssa Tayachi</td>
<td>121</td>
</tr>
<tr>
<td>13</td>
<td>Estimation of Errors Rates for FCA-based Knowledge Discovery</td>
<td>Dmitry Vinogradov</td>
<td>129</td>
</tr>
<tr>
<td>14</td>
<td>Building a Representation Context Based on Attribute Exploration Algorithms</td>
<td>Jaume Baixeries, Victor Codocedo, Mehdi Kaytoue and Amedeo Napoli</td>
<td>141</td>
</tr>
</tbody>
</table>