Preface for the first Workshop on AI-driven heterogeneous data management: Completing, merging, handling inconsistencies and query-answering (ENIGMA–2023)

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These are the proceedings of the 1st Workshop on AI-driven heterogeneous data management: Completing, merging, handling inconsistencies and query-answering (ENIGMA 2023), which took place on 3-4 September 2023 in Rhodes (Greece). The workshop was co-located with the 20th International Conference on Principles of Knowledge Representation and Reasoning (KR 2023).

Workshop description: Real-world applications are increasingly fed by large-scale, multi-source, heterogeneous information and data. This concerns private companies as well as public institutions. Urban networks are a typical example of applications that need to manage considerable amounts of heterogeneous data.

Heterogeneity relates to the presence of different data forms and formats, such as digital images, structured and unstructured files, analog maps, incomplete and unreliable data, etc. Alongside the notion of data, there are also constraints, knowledge and preferences that are often under-exploited in real-world applications.

In order to process and manage such heterogeneous data and information, it is important to identify the relevant elements in each data source, to detect them and finally represent them in a common format that can be easily queried.

The objective of this workshop is to bridge fundamental research in knowledge representation and reasoning with applied research. The aim is to encourage the emergence of novel solutions for representing, combining, classifying, clustering, integrating domain knowledge, repairing, explaining and querying data/information of different nature.

Technical program: The workshop received 11 submissions, and all of them have been accepted for presentation. Each submission has been reviewed by at least two members of the program committee. 9 of them are published here as full papers, and 2 as extended abstracts, according to the preferences of the authors.

Alongside these peer-reviewed contributions, we are pleased to have had 2 keynote speakers:

i) Nanée Chahinian (IRD, Montpellier, France), with a presentation entitled "Everything you always wanted to know about urban water networks but were afraid to ask"; and

ii) Sébastien Konieczny (CRIL, CNRS, University of Artois, France) with a presentation entitled "On epistemic spaces for iterated belief revision".

The two invited talks are published here as extended abstracts.

The eleven presentations as well as the two invited talks cover the different topics of the workshop. They also offer a good compromise between fundamental research and applied research on knowledge representation and the management of imperfect data/information of a different nature.

Program Committee:

- Alessandro Antonucci, Polo Universitario Lugano, Switzerland.
- Ofer Arieli, Tel-Aviv Academic College, Israel.
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