

Open call for a special issue on recent advances in preference handling

How to submit: login to <https://www.editorialmanager.com/amai/default2.aspx> and when selecting article type, choose "S721: preference handling" (you may have to scroll down).

Description Human-centered AI requires that AI systems are able to adapt to humans, to understand the preferences underlying human choice behavior, and to take them into account when interacting with humans or when acting on their behalf. Preference models are needed in decision-support systems such as web-based recommender systems, in digital assistants and chatbots, in automated problem solvers such as configurators, and in autonomous systems such as Mars rovers. Nearly all areas of artificial intelligence deal with choice situations and can thus benefit from computational methods for handling preferences while gaining new capabilities such as explainability and revisability of choices. Preference handling is also important for machine learning as preferences may guide learning behaviour and be subject of dedicated learning methods. Moreover, social choice methods are of key importance in computational domains such as multi-agent systems. Preferences are studied in many areas of artificial intelligence such as knowledge representation & reasoning, multi-agent systems, game theory, computational social choice, constraint satisfaction, logic programming and non-monotonic reasoning, decision making, decision-theoretic planning, and beyond. Preferences are inherently a multi-disciplinary topic, of interest to economists, computer scientists (including AI, databases, and human-computer interaction), operations researchers, mathematicians and more.

Given the increasing importance of handling preferences and of AI methods in general, we would like to propose a journal special issue focusing on the recent advances on preference handling and learning, be it through symbolic or numerical models.

Topics covered in the special issue include

- elicitation of preferences,
- (statistical) learning of preferences,
- uncertainty in preferences,
- modelling and representation of preferences,
- aggregation of preferences,
- reasoning with preferences,
- explaining preferences,
- use of preferences in
 - decision making (multicriteria, decision of group)
 - database querying,
 - web search,
 - personalized human-computer interaction,
 - personalized recommender systems,
 - e-commerce,
 - multi-agent systems,
 - game theory,
 - computational social choice,
 - combinatorial optimization,
 - automated problem solving,

- non-monotonic reasoning,
- planning and robotics,
- perception and natural language understanding,
- applications in particular domains (e.g., healthcare, sustainability).

Deadlines and review process Every submission will be thoroughly reviewed by at least two external reviewers and carefully supervised by one of the guest editors, who will make every effort to guarantee high quality standards. Submissions will be sent to reviews as soon as they will be submitted, and quickly published on-line in case of acceptance.

We expect to follow the following calendar:

- Submissions deadline: 15th January 2023
- Feedbacks: two to three months after reception of the submission or its revision
- Expected date of the special issue termination: 15th September 2023

Guest editors. The special issue will be co-edited by:

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