

Learning and Contesting Assumption-based Argumentation Frameworks (Invited Talk)

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Abstract

Assumption-based Argumentation (ABA) is advocated as a unifying formalism for various forms of non-monotonic reasoning, including logic programming. It allows representing defeasible knowledge, subject to argumentative debate, where arguments are deductions built from rules and supported by assumptions.

In this talk, I'll give an overview of ABA Learn, a recent approach to symbolic machine learning, which makes use of transformation rules (such as rote learning, folding and assumption introduction) to draw ABA frameworks from a background knowledge (also in the form of an ABA framework) and positive and negative examples. We'll see how ABA Learn can be implemented using answer set programming to learn ABA frameworks for brave and cautious reasoning under stable extensions. Finally, we'll see how to deal with contestability, a highly desirable property for human-centric AI, ensuring that the outcomes of an AI system (in our case, a learnt ABA framework) can be challenged, and possibly changed, when interacting with humans and/or other AI systems.

Declaration on Generative AI. The author(s) have not employed any Generative AI tools.

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