
A FLEXIBLE INFRASTRUCTURE FOR NORMATIVE REASONING

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Abstract

If humans and intelligent machines are supposed to peacefully co-exist, appropriate forms of machine-control and human-machine-interaction are required. Intelligent machines should assess and explain their actions and decisions in a form, preferably based on explicit normative reasoning, that is accessible to human understanding. In recent AI systems, however, which put a strong focus on machine learning, this aspect appears neglected.

But what are the best formal structures to enable such advanced normative reasoning capabilities in intelligent machines? To address this question, I argue for the development of a flexible reasoning infrastructure, supporting experiments with different deontic logics and ethical theories.

The proposed framework is based on the meta-logical approach to universal logical reasoning that I have successfully applied, together with colleagues and students, in previous studies in philosophy, computer science and mathematics. A demonstrator version of this flexible reasoning engine will be presented at the conference, and exemplary instantiations of it for some prominent deontic logics will be showcased. The majority of these logics have been automated for the first time.