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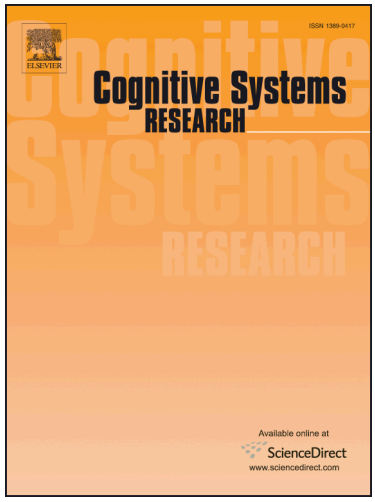

Computational Models of Ethical Decision-Making: A Coherence-Driven Reflective Equilibrium Model

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Computational Models of Ethical Decision-Making: A Coherence-Driven Reflective Equilibrium Model

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Abstract

There are scientific and technical challenges that must be addressed in developing systems that interact with humans and work along with other agents in complex, dynamic, and uncertain environments where ethical concerns may arise. In such systems relationships between users and autonomous components will be driven as much by issues such as trust, responsibility, and acceptability, as technical ones such as planning and coordination. This paper provides a comprehensive review and classification of existing methods in machine ethics, resulting in delineation of specific challenges and issues. To address the identified challenges, we introduce a method that leverages the method of reflective equilibrium and the multi-coherence theory as a unifying constraint satisfaction framework to simultaneously assess multiple ethical principles and manage ethical conflicts in a context-sensitive manner.

Keywords: decision-making, machine ethics, cognitive coherence, reflective equilibrium, cognitive agent