

Socio-Cognitive Modeling

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Abstract

Socio-cognitive modeling is a new research area that merges aspects of computer science, social sciences and cognitive science. The basic idea is to model interlinked social and cognitive phenomena. At the socio-cultural level, humans create and share conceptual artifacts such as symbols, words and texts. These are used as mediators between different minds. In communicating and sharing knowledge, individuals have to make a transformation between their internal representation into an explicit representation to be communicated and vice versa. The specific knowledge gained by children represents the shared knowledge of a culture including the social norms, e.g., related to language use. In our research, we are interested how norms emerge, evolve, and disintegrate at a sociocultural level, how the norms are internalized and externalized by individuals, how they are followed or occasionally deliberately not followed, and how they are implicitly represented in linguistic expressions and explicitly represented as externalized rules.

One approach in socio-cognitive modeling is social simulation. It aims at exploring and understanding of social processes by means of computer simulation. Social simulation methods can be used to support the objective of building a bridge between the qualitative and descriptive approaches used in the social sciences and the quantitative and formal approaches used in the natural sciences. Collections of agents and their interactions are simulated as complex non-linear systems, which are difficult to study in closed form with classical mathematical equation-based models. Social simulation research builds on the distributed AI and multi-agent system research with a specific interest of linking the two areas.