MSC: 68T42 Original
article

Formal genome model of a general artificial intelligence agent based on multi-agent neurocognitive architectures

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Abstract. The relevance of the research is determined by the need to develop and programmatically implement artificial general intelligence agents capable of self-learning based on adaptation to the conditions of solving problems of the universal spectrum based on the ontoepiphilosociogenetic learning process. The research is aimed at developing a formalization of a general artificial intelligence agent suitable for creating its simulation model. A formalization of an intelligent agent is constructed based on two-level multi-agent neurocognitive architectures using an automatic description and multi-agent functions. A formal description of the genomes of neuron agents as part of a multi-agent neurocognitive architecture and the genotype of an intelligent agent has been developed. The resulting formalization can be used to create software for general artificial intelligence systems.

Keywords: general artificial intelligence, multi-agent systems, neurocognitive architectures, abstract deterministic automata, multi-generational optimization, genetic algorithms, multi-agent functions

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