

# LEARNING ALGORITHM FOR AN INTELLIGENT DECISION MAKING SYSTEM BASED ON MULTI-AGENT NEUROCOGNITIVE ARCHITECTURES

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*The main fundamental problem of creating artificial intelligent decision-making systems is their inability to solve the unstructured tasks of the world on a par with humans. Existing systems do a good job of solving “narrow”, well-structured tasks; however, they are not capable of making effective decisions in the face of uncertainty and unstructured data. Within the framework of this problem, much attention is paid to the so-called upward approach to the development of artificial intelligence based on biological elements, since the human brain, having excellent flexibility, generalization and the ability to learn, surpasses modern intelligent systems.*

*The paper presents the formalism of an intelligent decision-making system based on multi-agent neurocognitive architectures, which has an architectural similarity to the human brain. An invariant of the organizational and functional structure of the intellectual decision-making process based on the multi-agent neurocognitive architecture is developed. An algorithm for teaching intelligent decision-making systems based on the self-organization of the invariant of multi-agent neurocognitive architectures is presented. Using this algorithm, an intelligent agent was trained and the architecture of the learning process was built on the basis of an invariant of neurocognitive architecture. Further research is related to training an intelligent agent in more complex behavior and expanding the capabilities of an intelligent decision-making system based on multi-genic neurocognitive architectures.*

**Keywords:** intelligent systems, decision making, multi-agent systems, cognitive architectures, self-learning systems

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