

ARCHITECTURE OF CAD FOR DISTRIBUTED ARTIFICIAL INTELLIGENCE BASED ON SELF-ORGANIZING NEURO-COGNITIVE ARCHITECTURES

Z.V. NAGOEV¹, Z.A. SUNDUKOV¹, I.A. PSHENOKOVA², V.A. DENISENKO²

¹Federal public budgetary scientific establishment «Federal scientific center
«Kabardin-Balkar Scientific Center of the Russian Academy of Sciences»
360002, KBR, Nalchik, 2, Balkarova street
E-mail: kbncran@mail.ru

² Institute of Computer Science and Problems of Regional Management –
Branch of Federal public budgetary scientific establishment «Federal scientific center
«Kabardin-Balkar Scientific Center of the Russian Academy of Sciences»
360000, KBR, Nalchik, 37-a, I. Armand St.
E-mail: iipru@rambler.ru

The goal of the work is the creation of CAD for distributed artificial intelligence based on self-organizing neurocognitive architectures.

The object of the study is to develop an architecture and substantiate its applicability for creating CAD systems for an intelligent agent. An intelligent agent is a rational software agent that includes a significant number of other software agents that implement the necessary functionality of life support systems, specialization and management of the agent's intellectual behavior. Many interacting software agents-neurons form a neurocognitive architecture, which can distinguish cognitive nodes that perform heterogeneous functions, are connected with each other according to data, and form an invariant of the organizational and functional structure of the intellectual decision-making process. The invariant of multi-agent neurocognitive architecture consists of interconnected nodes for recognizing input images, evaluating, setting goals, synthesizing an action plan, modeling the consequences of fulfilling a plan, managing the execution of the plan.

It is proved that the client-server architecture is the most effective in the development of CAD for an intelligent agent. The developed CAD for an intelligent agent architecture takes into account the dynamic properties of neuron agents, distributed architecture, topology and the possibilities of self-organization and self-training based on the formation and termination of multi-agent contracts. Some implemented elements in the prototype CAD for an intelligent agent are presented.

Keywords: artificial intelligence systems, multi-agent system, neurocognitive architecture, CAD, self-organizing systems.

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Nagoev Zalmhan Vyacheslavovich, PhD, President of Kabardin-Balkar Scientific Center of the Russian Academy of Sciences.

360000, KBR, Nalchik, Inessa Armand Str, 37-a.

Ph./fax: (8662) 42-65-62.

E-mail: zaliman@mail.ru

Sundukov Zaurbeck Amurovich, Federal public budgetary scientific establishment «Federal scientific center «Kabardin-Balkar Scientific Center of the Russian Academy of Sciences».

360002, KBR, Nalchik, 2, Balkarova street.

Ph. 8-903-490-71-23.

E-mail: avvarice@yandex.ru

Pshenokova Inna Auesovna, Ph.D., Head lab. Intellektual'nyye sredy obitaniya and Institute of Computer Science and Problems of Regional Management of KBSC of the Russian Academy of Sciences.

360000, KBR, Nalchik, 37-a, I. Armand street.

Ph. 8-909-490-19-49.

E-mail: pshenokova_inna@mail.ru

Denisenko Vladimir Anatolevich, staff scientist of the laboratory "Intelligent environment" of the Institute of Computer Science and Problems of Regional Management of KBSC of the Russian Academy of Sciences.

360000, KBR, Nalchik, I. Armand street, 37-a.

Ph. 8-928-715-80-80.

E-mail: sage@mail.ru