

Distributed Memory System Architecture based on the Analyses of Human Brain Memory

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Abstract: A novel human memory system architecture is proposed. The memory system is an integration of three distributed memory systems associated with respective autonomous organic systems, including the perceptual system that takes care of sensory input from the environment, the conscious system that performs deliberate decision making, and the unconscious system that carries out action selections in the environment. This memory system architecture is consistent with the wide range of recent findings in the field of neurosciences. The memory system architecture works as a memory component in the comprehensive real brain model, MHP/RT, published in the Cognitive Science conferences, and the BICA conferences. MHP/RT is capable of simulating human daily behavior considering real time constraints that should define strong mutual dependencies among the three systems. With this memory system architecture, MHP/RT becomes a real brain model to be contrasted with virtual and partial models, such as ACT-R.