Human Memory - Neurocomputer (MeNeCe Project): Structure For Reverbation Of The Information In N-Peaked Nets (In STMemory)

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Abstract

The author proposes the knowledge-base of the artificial intelligent systems to be simulated by neuro-network modelling of the human memory, i.e. theoretically to be build artificial MEMORY-NEUROCOMPUTER (MeNeCo) of three types: consecutive, hybrid and parallel, with future programme or optico-cholographic, or microelectronic or bioelectronic, or super-conductive realization. All versions of MeNeCo will: 1. keep and work in information in a statistically complex kind; 2. Automatically rate logical conclusions and summaries; 4. Find out, get to know, identify by passive and active reproduction-reminding; 5. Modelling and simulation of model visual and auditory memories; 6. Ensure, partial or full the other intellectual processes (thinking, speech, perception, attention, imagination and so on)., and a complex super-network of neurocomputers; 7. And other.

MeNeCo's versions will be created on the models of "NEURONGLI" system (analogical-discreet model of activity); dynamics of plasticity and adaptation, specialization of: neuro-column structures, the spatial and stochastic temporary processes and connections of the structure, self-organization in substratis and determinant, probable meaning) and SUB-CELLULAR NEURONIC SYSTEM (with model of ionic canals and the synapses the mediators, neuropeptides and nucleonic acids, and so on. MeNeCe will architectically present the whole sphere with: CENTRE (radially-basic structure). ENVIRONMENT (columnic-nestlike networks). PERIPHERY (divergenting and convergentic staphyline-clasteric structures), with described below structure for reverbation of the information in N-peaked nets (by analogy with human Short-Term Memory - STM). Knowledge of MeNeCe will simulate both aspects (psycho-linguistic and anatomo-physiological) of the associativity [1, 2].

The informational mnemo-process (human STM) in the cortex-undercortex brain structures as models are commutational net of connections in type of connected oriented symmetric mnemograph (which peaks and arcs correspond to the "neuroknots" and input-output sheaves and canals) defined as follows:

Definition 1: Neuro-Knots for Commutation;

Definition 2: Neuro-Canals and Sheaves of Neuro-Canals;

Definition 3: Reliability of the Neuro-Canals and the Sheaves;

Definition 4: Intensity, Attractiven, Duration of the Conversation - Mutual Activity;

Definition 5: A Net Model of the Analysis of the Connections and the Distribution of the Flows of Information

Definition 6: Displaying the Structure and Loading on a Computer

References:

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2. S.J. Mrchev,... Memory-Neurocomputer (2part), Int. Conf. on Model. Probl. in Bionics - BIOMOD 92, June 92, St. Petersburg, Russia (organizer: Prof. Dr. Leonid P. Kraiser).