

Invited Keynote Talk

Cognitive Synergy: A Principle to Guide the Tight Integration of Heterogeneous Components in Integrative AI Systems

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The concept of "cognitive synergy" is introduced, as a formalization of the idea that in a cognitive system containing multiple heterogeneous learning processes, the different processes should be connected in such a way that each one can get help from the others when it "gets stuck." The role of cognitive synergy in the OpenCog integrative AI architecture is described, with examples given involving the application of OpenCog to control animated agents in virtual worlds. The potential implications of cognitive synergy for the design of neural-symbolic systems is also discussed, in the context of an in-development system called XIA-MAN that is intended to combine neural net evolution with OpenCog to control a Nao humanoid robot.