Invited Keynote Talk

The Connection Graph Proof Procedure as a Logical-Connectionist Model of the Mind

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In this talk, I present an agent architecture in which thinking is modeled as activating links in a connection graph of goals and beliefs, represented in abductive logic programming (ALP) form. In this ALP agent model, beliefs are represented as logic programming clauses, and goals are represented as a variant of range-restricted FOL clauses. This clausal representation facilitates a connectionist (connection graph) implementation, in which forwards and backwards reasoning are different ways of selecting and activating links. The activation of links can also be determined in the manner of Patie Maes' activation networks, by associating different strengths with different goals and beliefs and different weights with different links, spreading the strength of activation throughout the graph in proportion to the weights on the links.