

F. B. Lima Neto *et al.* “Computational Intelligence Booth”



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Computational Modelling

Can natural and social sciences inspire worthy intelligent computation models?

Wolves, hunting in packs, share tasks in a orderly and effective manner (see WPA Project).



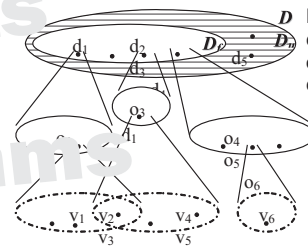
Fishes, swimming in schools, maximize mutual survivability (see FSS Project).



Social clashes produce revamps on collective roles, goals and relations (see ODM Project).

Decision Support Systems

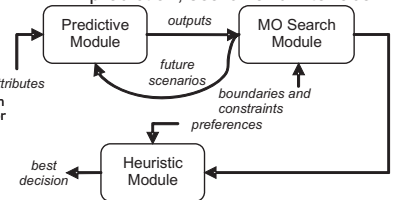
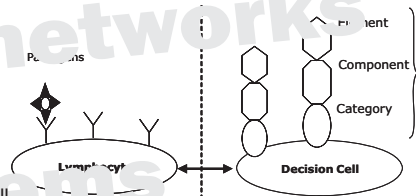
Can intelligent systems act as effective decision aides?



Decision Ontology: a decision can be perceived as sets of objectives and variables, or components and attributes.

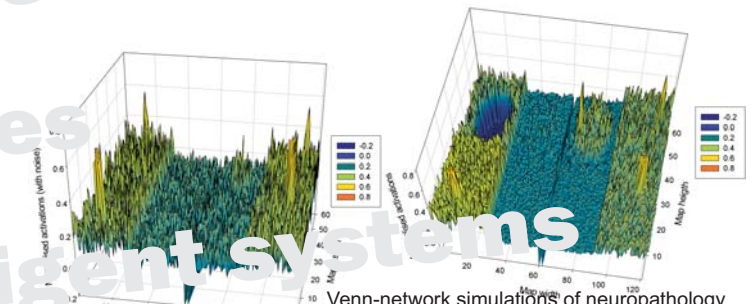
Decision support systems: they can be assembled by hybridization of many computational intelligent techniques to perform tasks of prediction, search and interface.

Executive decisions can be helped by immune algorithms, in line with this see this analogy between a lymphocyte (left) and a decision cell.



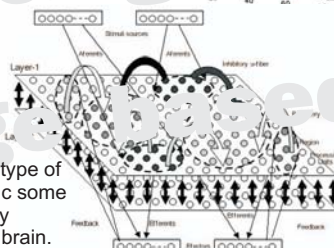
Computational Neuroscience

Can computational models emulate cognitive processes?



Venn-network simulations of neuropathology effects on the activation of cortical patches: multiple-sclerosis (left) and stroke (top).

ML-Venn is multi-layer version of Venn-nets (i.e. a type of artificial neural network) that has the ability to mimic some brain function at the same time their internal activity resemble what is seen in functional imaging of the brain.



Example of Venn-network controlling movements of virtual fingers while performing a Mozart sonata; left Figure exhibits the pianist's right hand fingers).

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