'Creating an Artificial Brain'
Organisers: W Duch & JG Taylor
Date: Sep 15, 2005, after ICANN 2005
Place: Nicolaus Copernicus University, Torun, Poland

There is an upsurge of interest in the attempt to build an artificial brain. This is for several reasons:

i) The enormous increase of computing power over the last decade or so;
ii) The increased understanding of the brain arising from developments in brain imaging and single cell recordings and the associated use of probing psychological paradigms;
iii) The increased demands from industry in terms of the creation of autonomous agents with some form of cognitive powers, even up to that of 'conscious' machines.

An important aspect of this general advance is that guidance is being taken from the higher processing power of the brain, to help produce systems with a similar or even greater power. In so doing an overlap is now growing between machine intelligence per se and computational neuroscience, with projects being guided by global brain processing as observed by neuroscience. Already several such projects, using clusters of up to ten thousand nodes are being pursued; with the largest such cluster of 150,000 nodes indicating what is now available.

This workshop proposes to explore the issues raised in following such an avenue:
1) The nature of the global brain itself, and the data relevant to help guide us forward;
2) The problems of the level at which to base any such approach, in terms of neuron complexity, connectivity levels, number of separate modules, learning rules, use of neuro-modulators, range of brain science data to be explained or incorporated in any model;
3) The problems of size and speed of the resulting computation, and whether to aim for real-time or off-line learning and responses
4) How to incorporate the faculties of attention, emotion and memory in an input-output system able to develop concepts and to ultimately be able to 'think for itself'.

Applications are welcome for proposed talks in the workshop (which will last one day).

Please send suggestions (title, author co-ordinates and abstract) to the organizers at john.g.taylor@kcl.ac.uk and ASWDuch@ntu.edu.sg.

We look forward to seeing you at the Workshop!

For details on the venue and organization please see:
http://www.ibspan.waw.pl/ICANN-2005/workshops.html