Unconventional computing using ANNs

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We present recent results from the area of Spiking Neuronal P Systems (SNP systems) which are a class of distributed parallel neural-like computation models inspired by the mechanism that biological neurons process information and communicate with each other by means of spikes.

In the past decade the neurons in particular and the brain in general have been investigated and better understood in part also due to the two major projects: Human Brain Project in Europe and BRAIN Initiative (US). We will present several results related to the SNP systems and their variations as computing devices, in many cases achieving Turing Universality even in restricted cases.

Recent research results and open questions will be also presented especially for the Spiking neural P systems with communication on request (SNQ P systems). We are able to construct small Turing universal SNQ P systems by using low numbers of neurons.
Several other research projects from ICIA will also be presented.