SpiNNaker Visualizer

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Abstract

With the advancement of Artificial Intelligence, there has always been research regarding modelling of a computationally intelligent system which would work like a human brain. The human brain is composed of hundred billion processing elements, commonly known as neurons. The simulation of the full human brain can be achieved by a massively parallel computing environment which requires hundred million processors.

SpiNNaker – Spiking Neural Network architecture is a novel computer architecture which is inspired by the working of the biological brain. It can model up to a billion neurons and a trillion synapses in biological real time. The complex environment of this system requires certain level of monitoring, control and management of resources.

This Dissertation aims to provide a GUI (Graphical User Interface) based visualization and monitoring tool for the SpiNNaker machine. This software creates a real time view of a SpiNNaker machine hardware and software, along with all the constituent components. It also provides the view of all parallel connected processors and their connections. This tool provides information about every neural activity that will be going on inside the machine. It also provides a compact, productive and good user interaction for the SpiNNaker Machine. This tool would not only help in monitoring and representation of the machine, but also in benchmarking and optimization of the computation power of the machine.