Abstract

In this work the Reservoir Computing (RC) technique; specifically the Liquid State Machine (LSM) was chosen to simulate a Movement Predictor system at minimum cost, experiencing both short and long term prediction. Also in this work shows the possibility to simulate the LSM without the need to event based simulation (i.e. proving that it is not urgent to interface the MATLAB programming language with other programming languages like C and C++ to simulate the LSM). The encoding from spiking to analog domain was avoided in this work. This means there is no waste in the input information due to the encoding process. Also this will result in simpler LSM scheme.

References


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Movement Prediction using Reservoir Computing

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Index Terms

Computer Science

Neural Networks

Keywords

Reservoir Computing  Spiking Recurrent Neural Network (SRNN)  Liquid State Machine (LSM)  Prediction

Spiking Neuron

Time based simulation