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(54) Title: NEUROSYNAPTIC PROCESSING CORE WITH SPIKE TIME DEPENDENT PLASTICITY (STDP) LEARNING FOR A SPIKING NEURAL NETWORK

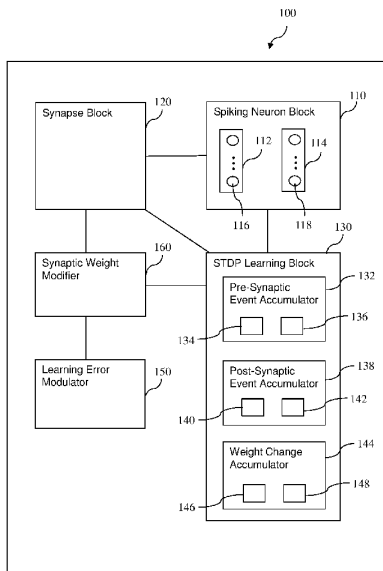


FIG. 1

(57) Abstract: There is provided a neurosynaptic processing core with spike time dependent plasticity (STDP) learning for a spiking neural network, including: a spiking neuron block including a pre-synaptic block and a post-synaptic block; a synapse block communicatively coupled to the spiking neuron block; a STDP learning block communicatively coupled to the spiking neuron block and the synapse block, the STDP learning block including a pre-synaptic event accumulator including a pre-synaptic spike event memory block and a pre-synaptic spike parameter modifier; a post-synaptic event accumulator including a post-synaptic spike event memory block and a post-synaptic spike parameter modifier; a weight change accumulator, and a weight change parameter modifier; a learning error modulator; and a synaptic weight modifier configured to modify a synaptic weight parameter based on a weight change parameter and a learning error corresponding to the synaptic weight parameter. There is also provided a corresponding method of operating and a corresponding method of forming the neurosynaptic processing core.

WO 2022/045961 A1

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