

Improving eligibility propagation using Izhikevich neurons in a multilayer RSNN.

Presentation 2: Visualization, validating, and visualization

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Work done

Visualization:

- Network graph;
- Full state history & IO plot.

Validation:

- New tasks: pulse, sinusoid, NARMA-10;
- Identified and fixed a number of errors;
- Replaced EMA by W_{out} .

Major refactor and cleaning of code.

Better study and increased understanding of e-prop algorithm.

Still to do

Next steps:

1. Acquire results of NARMA-10 benchmark.
2. Implement adaptive e-prop: learning signal mapped back onto weights through learnable regression weights. Currently using static weights.
3. Implement firing rate regularization.
4. Reproduce Bellec's TIMIT performance.

Questions

1. Implementing synaptic scaling was one of the proposed improvements to the network, but ALIF neurons effectively incorporate this. Should I stay with ALIF, or implement SS in Izhikevich neurons?