BrainScaleS-2 Neuromorphic Simulation Example

Overview

This document summarizes a simulation example for BrainScaleS-2 hardware. The experiment demonstrates how spiking neural networks behave in a neuromorphic environment, featuring membrane voltage dynamics and spike-based communication between neurons.

Expected Output

When the provided demo notebook (e.g., `hwdemo.ipynb`) is executed on BrainScaleS-2, the system will perform the following tasks:

- Load a trained neural network model
- Evaluate the model on a test dataset (e.g., MNIST or Yin-Yang)
- Simulate neuron dynamics and generate spike outputs
- Compute and display classification accuracy

Sample log output:
Training 0 epochs -> duration: 0.234 seconds
test accuracy 0.943

Simulated Results

Below is a visualization of what you can expect in terms of neuron behavior during the simulation. The top plot shows the membrane voltage over time for a single neuron, while the bottom plot displays a spike raster for 5 neurons.