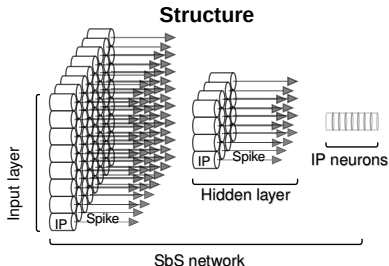
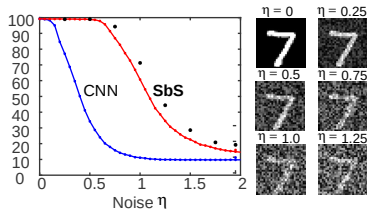


Spike-by-Spike Neural Network



Noise robustness



Properties:

- Noise robustness
- Iterative optimization
- No sign bit required

Requires division

Compute and memory intensive

Neuron update

$$h_{\mu}^{new}(i) = \frac{1}{1 + \epsilon} \left(h_{\mu}(i) + \epsilon \frac{h_{\mu}(i)W(s_t|i)}{\sum_j h_{\mu}(j)W(s_t|j)} \right)$$

Non-negativity $0 \leq W(s_t|j) \leq 1$

Normalized $\sum_{s_t=0}^{M-1} W(s_t|j) = 1$