

SNACE Meeting

16.10.25 Meeting

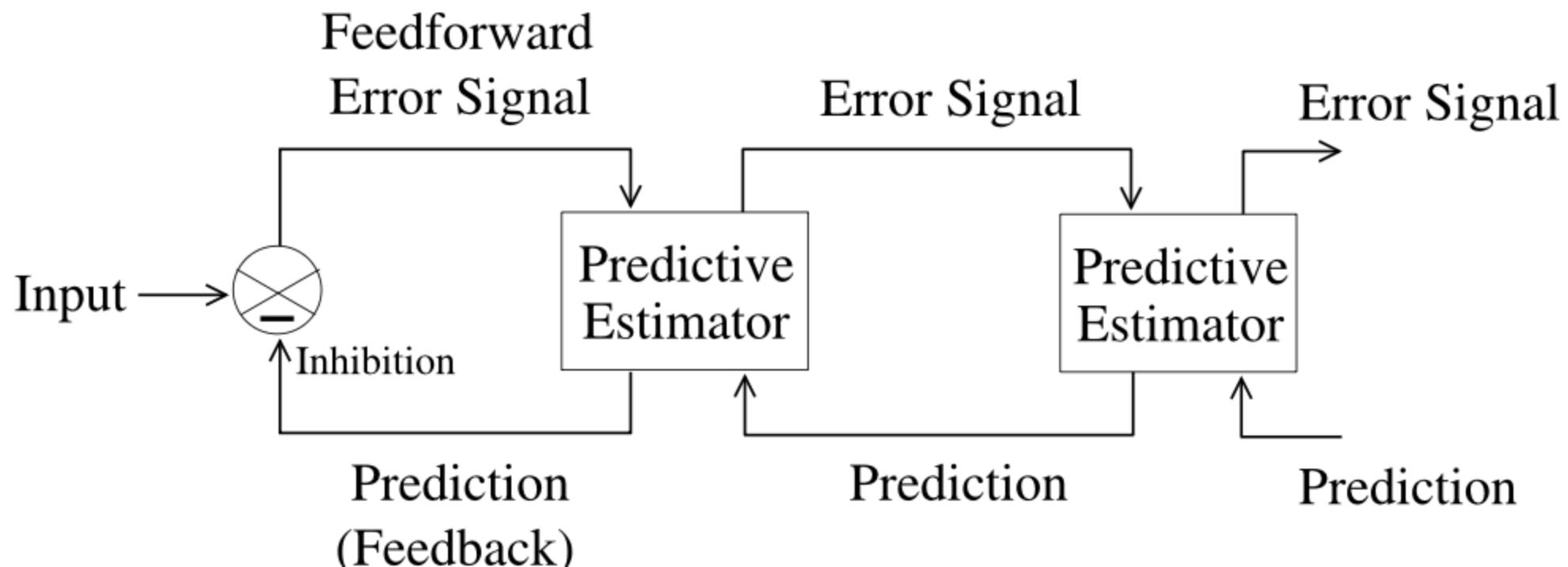
Efficient Coding Control Layer

Goal: Design a control scheme optimizing both task performance and system energy efficiency.

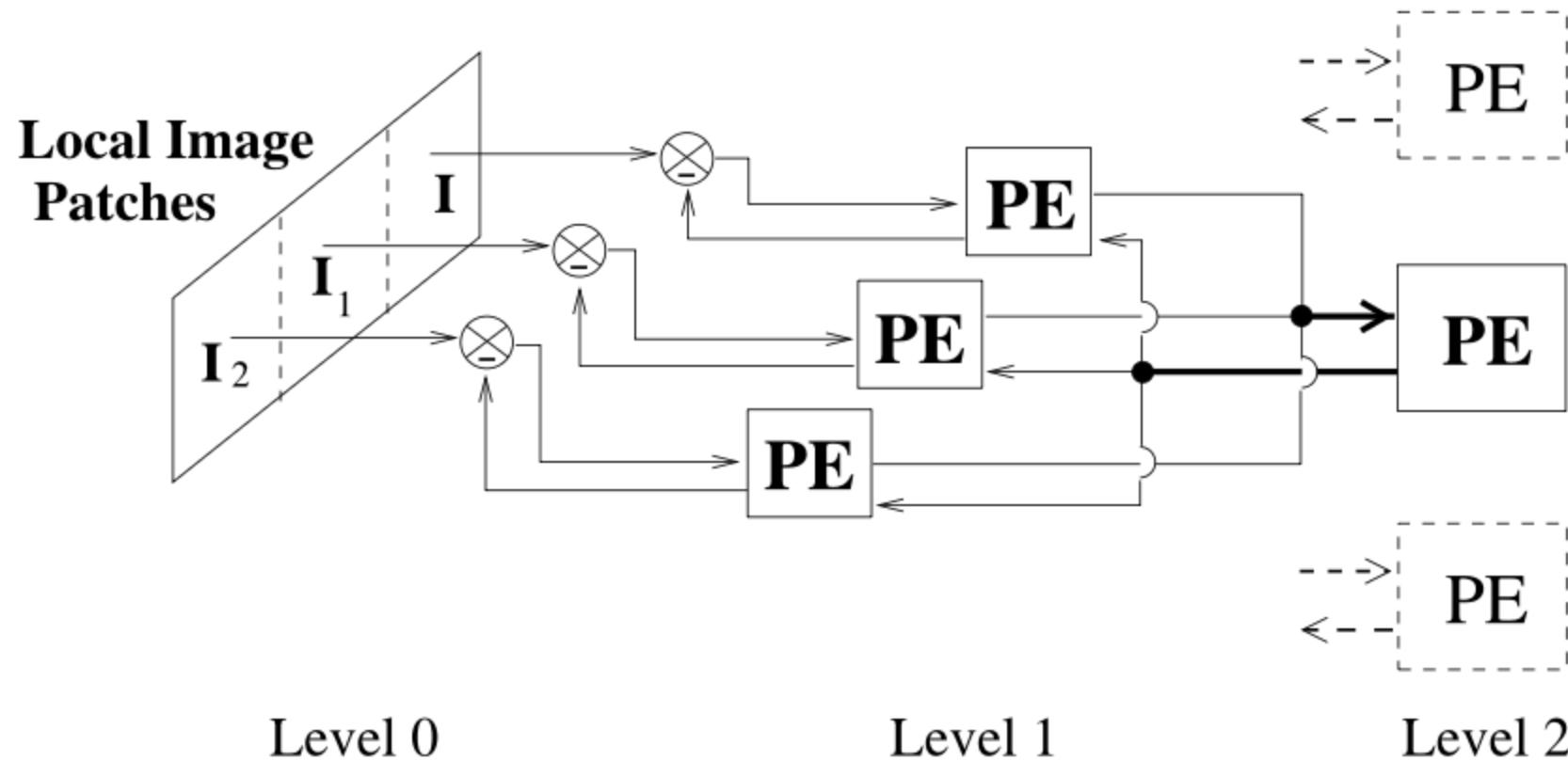
Active Efficient Coding: Adapts biases/gains of lower layers via feedback using a Reinforcement Learning Framework and a sparse coding model.

Predictive Coding

- Uses a hierarchical network minimizing prediction error.
- Feedforward = residual error / Feedback = prediction.
- Only unexpected information is propagated.



Predictive Coding Example



Implementation of Neuromorphic PLL

- Started implementation of SOtA sPLL .
- Mastella, M., Tiemens, T. & Chicca, E. Texture Recognition Using a Biologically Plausible Spiking Phase-Locked Loop Model for Spike Train Frequency Decomposition (2024).
- Planning to study the system robustness to various types of noise.

Planning of the SNACE Meeting Discussion

- Should we prepare something to have some points to discuss during the meeting and make it more productive ?