Contribution ID: **16** Type: **not specified**

Enabling Neuromorphic Learning Machines with Multilevel Learning

Thursday 22 September 2022 10:30 (30 minutes)

Modeling successful online learning in real-world environments is an aspirational goal of neuroscience and artificial intelligence technologies. Using deep learning for modeling synaptic plasticity in the brain has led to recent breakthroughs, but standard deep neural networks struggle to achieve real-world, online learning. Furthermore, the randomized, energy- and data-intensive process for training them is incompatible with the physical nature and online operation of the brain.
Thanks to their evolution and multiple development stages, brains can integrate new knowledge by leveraging prior knowledge and structure, and do so with unparalleled efficiency.
In this talk, I will discuss multistage learning methods that can "train-to-learn"brain-inspired, neuromorphic systems that capture the brain's architecture and dynamics.
These methods enable shifting the complex, energy and data-intensive stages of learning to data centers and away from the edge where power and area are limited, thus paving the way towards fast and energy-efficient neuromorphic learning machines.

Presenter: Prof. NEFTCI, Emre (RWTH Aachen University, Research Center Juelich)

Session Classification: Perspectives of computing technologies to decode the human brain