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Spike-based analog computing

Thursday 22 September 2022 10:00 (30 minutes)

Spike-based neuromorphic computing realizes an in-memory, event-based computing paradigm. By transferring results and ideas from Neuroscience to technology, it allows us to overcome the power wall our CPU-centric CMOS technology is facing.

This talk will present an analog hardware realization of spike-based neuromorphic computing developed at Heidelberg University: The BrainScaleS system.

It will summarize how the Heidelberg BrainScaleS accelerated analog neuromorphic architecture implements neuroscientific principles of neural dynamics, spike communication and local learning. BrainScaleS combines power efficiency with the necessary flexibility and programmability to reduce the resource requirements of AI as well as modelling biology.

The talk will demonstrate how analog, spike-based brain inspired computing is playing an important role in the search for novel computing technologies.

Presenter: Dr SCHEMMEL, Johannes (Heidelberg University, Heidelberg, Germany)

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