



synch - A SYNaptically connected brain-silicon Neural Closed-loop Hybrid system

The brain, with its remarkable computational properties, provides animals with capabilities of physical autonomy, interaction and adaptation that are unmatched by any artificial system. The brain is a complex network that has evolved to optimize processing of real-world inputs by relying on event-based signaling and self-reorganizing connectivity. Spikes (the events) are transmitted between neurons through synapses which undergo continuous 'birth'-'death' and adjustment, reconfiguring brain circuits and adapting processing to ever changing inputs.

The scientific and technological objective of the project is to create a hybrid system where a neural network in the brain of a living animal (BNN) and a silicon neural network of spiking neurons on a chip (SNN) are interconnected by neuromorphic synapses, thus enabling co-evolution of connectivity and co-processing of information of the two networks

UNIPD Team Leader: Stefano Vassanelli

Department: Department of Biomedical Sciences

Coordinator: Università degli Studi di Padova

Other Participants:

University of Southampton (United Kingdom)

Technische Universität Dresden (Germany)

Technische Universität Graz (Austria)

Bar-Ilan University (Israel)

aiCTX AG (Switzerland)

ArC Instruments Ltd (United Kingdom)

EnginSoft SpA (Italy)

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