Jozsef Fiser

Associate Professor
Central European University, Budapest, Hongrie
University of Rochester, NY, USA

Sampling-based probabilistic representation and computation in the cortex

I will present a framework and a combined empirical-computational program that explores what computation and cortical neural representation could underlie intelligent behaviour. I will start by giving a brief summary of the fundamental logic of the sampling-based probabilistic framework. Next, I provide evidence that a model built in these principles can replicate and normatively explain not only classic results of the emergence of simple cell receptive fields, but also reduction of membrane potential variance at high contrast, quenching variability at stimulus onset, sparsification of spiking with stimuli covering the non-classical receptive field and features of spontaneous activity. I will also provide developmental evidence for the emergence of such representation in the cortex.