

Nehla Debbabi

Sažetak predavanja:

In this talk a novel method for detection of action potentials (spikes) from extracellular neural recordings will be presented. The method combines algebraic approach with Extreme Value Theory (EVT). The algebraic method characterizes the occurrence of a spike by an irregularity in the neural signal and devises a nonlinear (Volterra) filter which enhances the presence of such irregularities. These appear as a positive high amplitude pulses in the output signal. The occurrence of such pulse is interpreted as a rare and extreme event which is modeled in the framework of EVT. With this model, an explicit expression of a decision threshold corresponding to a given probability of false-alarm is derived performing the spike detection in a noisy environment.