BMSR Biomedical Simulations Resource

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University of Southern California

BIOMEDICAL SIMULATIONS RESOURCE (BMSR)

USC

Short Course:

Modeling Nonlinear Synaptic Dynamics using EONS

Organized by Jean-Marie C. Bouteiller., Ph.D. - Theodore W. Berger, Ph.D.
With the help of Arnaud Legendre and the team Rhenovia Pharma Mulhouse.

Date

March 26, 2012 *(Monday)*

Location

Rhenovia Pharma

RHENOVIA PHARMA
Main conference room
Technopole - Mer Rouge Plaza
20C rue de Chemnitz
68200 Mulhouse Cedex France

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About the Short Course

This short course will focus mainly on the following:

1. Provide an introduction to EONS: what is EONS? Why using EONS, and how?
2. Provide some insight on the current features of the synaptic modeling platform (algorithms and numerical methods in use, synaptic elements currently modeled, scientific questions being addressed, etc...).
3. In what direction should future developments evolve to better address the needs of the scientific community, for research as well as education (addition of synaptic elements and pathways, interaction with other platforms such as Neuron, modeling CNS pathologies, application to drug discoveries, etc...).

The meeting will include hands-on computer sessions, please bring a laptop with a version of Java v.1.6+

Short Course Program

8:00–8:30 am	***Continental Breakfast***
8:30–10:00 am	***Motivation behind the creation of EONS - Overall description***
10:15–12:30 pm	***EONS – Hands-on, Guided Exercices***
12:30–1:30 pm	***Lunch***
1:30–2:45 pm	***Presentations by Invited Speakers - (Series of 15 minutes talks)***
2:45–3:45 pm	***The Future of EONS*** ***Extending EONS for Drug Discovery: RHENOMS Perspectives***
3:45-4:00 pm	***Break***
4:00–5:30 pm	***Round Table: Extensions, Future and Applications***

For additional information please contact
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EONS

Chemical synapses, although representing the smallest unit of communication between two neurons in the nervous system constitute a complex ensemble of mechanisms. Understanding these mechanisms and the way synaptic transmission occurs is critical for our comprehension of CNS functions in general and learning and memory in particular. EONS is an acronym for Elementary Objects of the Nervous System. EONS is a modeling platform that focuses on describing the dynamics that occur at one glutamatergic synapse. it allows neuroscientists throughout the world to study qualitatively and quantitatively the relative contributions of each and every elements that comprise a synapse, the interactions between these components and their subcellular distribution, as well as the influence of synaptic geometry (presynaptic terminal, cleft and postsynaptic density). For further details of the modeling platform, a more thorough description is available at: http://synapticmodeling.com.

About the BMSR

The Biomedical Simulations Resource (BMSR) is dedicated to advancing the state of the art in biomedical modeling and simulation through its four innovative core research projects, 14 nationwide collaborative projects, and through software development, training, and dissemination activities aimed at the biomedical research community at large. Through these activities, the BMSR serves as a catalyst of discovery for biomedical investigators worldwide.