



The Institute for Neural Computation

ROCKWOOD MEMORIAL LECTURE



Dr. Eugene M. Izhikevich

Co-Founder, Chairman and CEO
Brain Corporation, San Diego, CA

Spikes

When: Monday, April 23, 2012 - 3:30PM

Location: San Diego Supercomputer Center Auditorium, Room B211E

Host: Gert Cauwenberghs

Abstract:

Most communication in the brain is via spikes. While we understand the spike-generation mechanism of individual neurons, we fail to appreciate the spike-timing code and its role in neural computations. The speaker starts with simple models of neuronal spiking and bursting, describes small neuronal circuits that learn spike-timing code via spike-timing dependent plasticity (STDP), and finishes with biologically detailed and anatomically accurate large-scale brain models.

Biography:

Dr. Eugene M. Izhikevich is a computational neuroscientist known for his contributions into the theory of nonlinear dynamical systems and spiking networks. He pioneered a novel approach to spiking neurons that combined biological plausibility and implementation efficiency, which allowed him in 2005 to simulate the largest thalamo-cortical model having the size of the human brain, i.e., the same number of neurons and synapses as in human brain. Presently, Dr. Izhikevich is the Chief Executive Officer of Brain Corporation, San Diego, CA, which he founded in 2009 to build a biologically detailed spiking model of the visual system and motor control (<http://www.braincorporation.com>). Before that, he was with The Neurosciences Institute in San Diego, where he founded Scholarpedia - the peer-reviewed open-access encyclopedia (<http://www.scholarpedia.org>). Eugene is the editor-in-chief of Encyclopedia of Computational Neuroscience and Encyclopedia of Dynamical Systems. Academic webpage is at <http://www.izhikevich.org>.

2012 Rockwood Memorial Lecture

INC sponsors the H. Paul Rockwood Memorial Lectureship held annually. The Rockwood Memorial Lectureship Fund was gifted to the Institute by Mr. and Mrs. Jerome Rockwood in memory of their late son's interest, studies, and work in the neural computation field. The Rockwood Memorial Lectures are endowed by Mr. and Mrs. Jerome Rockwood in memory of their late son, Paul, who received a B.S. in Computer Science from UCSD in 1980 and then obtained a second degree B.A. in Psychology in 1981. In 1983 he started a company, Integral Solutions, to develop a universal language translation, but died tragically in a mountaineering accident before he could fulfill his promise.