Bio@SNS

Laboratorio di Biologia

SCUOLA NORMALE SUPERIORE

NEUROSCIENCE SEMINARS 2015/2016

WEDNESDAY
MARCH 16, 2016
h. 12:00
Sala Azzurra
Scuola Normale Superiore
Palazzo della Carovana
Piazza dei Cavalieri 7
Pisa

SPEAKER: Silvestro Micera

The BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy and Bertarelli Foundation Chair in Translational NeuroEngineering, Center for Neuroprosthetics, Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

TITLE: "Neuroprosthetics for a better life: current achievements and future perspectives"

ABSTRACT:

Neuroengineering is a novel discipline combining engineering including micro and nanotechnology, electrical and mechanical, and computer science with cellular, molecular, cognitive neuroscience with two main goals: (i) increase our basic knowledge of how the nervous system works; (ii) develop systems able to restore functions in people affected by different types of neural disability. In the past years, several breakthroughs have been reached by neuroengineers in particular on the development of neurotechnologies able to restore sensorimotor functions in disabled people.

In this presentation, after a general introduction about the results achieved so far by neuroprosthetic systems, two main research activities on this topic carried out by my laboratory in the past years will be presented. First, the recent results achieved after the implantation of intraneural electrodes in an amputee will be presented. We showed that using this approach it is possible to restore the bidirectional connection between a dexterous hand prosthesis and the nervous system. The user was also able to improve his ability to provide useful motor commands over time.

Then, I will show the results achieved in collaboration with Prof. Courtine at EPFL to restore locomotion using epidural electrical stimulation after spinal cord injury in rats.

Finally, a brief description of neuroprosthetics possible future achievement will be also provided.

NEXT UPCOMING SEMINAR: *Friday April 1, 2016 – Prof. Pierre Baldi, University of California in Irvine (UCI), School of Information and Computer Sciences (ICS), Institute for Genomics and Bioinformatics (IGB)****http://laboratoriobiologia.sns.it/biosns-neuroscience-seminars-20152016/***