

INTRODUCTION

Neurorehabilitation is entering a new exciting era. A wide range of new technologies is increasingly being integrated into clinical practice, enhancing the potentiality of therapists and clinicians to rehabilitate, diagnose and generate knowledge.

We envision a future in which *Neurorobotics, Neuroprosthetics, Brain-Machine Interfaces and Virtual Reality* will represent efficient and well-accepted means of interaction between the therapist and the patient. In this ambitious scenario, the emergence of new therapies is needed, in order to effectively exploit the huge potential of the available technology.

The *2012 Summer School of Neurorehabilitation* will bring together students and world-class professors and researchers from the fields of clinical rehabilitation and biomedical engineering in order to promote and encourage this global shift in therapy. This School is a great opportunity for any PhD student with a medical or engineering background willing to learn the potential of new therapeutic approaches that integrate state of the art technology with current clinical experience and knowledge.

TOPICS & STRUCTURE

The Summer School will focus on the following main areas:

- New therapies in Stroke, Spinal Cord Injury, Cerebral Palsy and Parkinson's Disease.
- Current and future clinical applications of Robotics, Neuroprosthetics, BCI and Virtual Reality.
- New tools for the diagnosis and modeling of neuromotor disabilities.

In the morning and afternoon the students will attend **plenary talks** and **hands-on workshops** (see the list below). In the late afternoons and evenings, students and speakers are invited to participate in social, cultural and sport activities. For further information please visit the Summer School Website: www.SSNR2012.org.

PLENARY SPEAKERS

Metin Akay, University of Houston, USA

Paolo Bonato, Spaulding Rehabilitation Hospital, Boston, USA

José Contreras, University of Houston, USA

Dario Farina, Göttingen University Medical Center, Germany

Romulo Fuentes, Intl. Institute of Neuroscience, Natal, Brasil

Belinda Lange, University of Southern California, L.A., USA

Roberto Merletti, Politecnico di Torino, Italy

Marco Molinari, Fondazione Santa Lucia, Rome, Italy

Vivian Mushahwar, University of Alberta, Edmonton, Canada

Miguel Nicolelis, Duke University, USA

Dejan Popovic, Aalborg University, Denmark

David Reinkensmeyer, University of California, Irvine, USA

W. Zev Rymer, Northwestern University, Chicago, USA

Thomas Sinkjær, Danish Natl. Research Foundation, Denmark

Jonathan Wolpaw, Wadsworth Center, New York, USA

HANDS-ON WORKSHOPS

The hands-on workshops will allow students to:

- Understand the basic principles of the technologies.
- Plan clinical interventions and experiments.
- Use the devices and tools in real applications.

The candidate workshop topics are:

1. **Brain Computer Interfaces (BCI)**
2. **Functional Electrical Stimulation (FES)**
3. **Virtual Reality in rehabilitation**
4. **How to design clinical experiments**
5. **Human body modeling with OpenSim**
6. **Motion Analysis with Inertial Sensors**

Applicants will be asked to choose three of the above candidate topics during the registration phase. The most voted topics will result in actual hands-on workshops.

IMPORTANT INFO

LOCATION: The 2012 Summer School of Neurorehabilitation will be held in Nuévalos (Zaragoza), Spain, from Sep 16 to 21, 2012.

COST: The registration fee is 890€ (VAT included), and includes full accommodation (shared rooms), meals for five days in the ancient castle "Monasterio de Piedra" (www.monasteriopiedra.com), lecture material and social activities.

REGISTRATION: In order to apply, fill in the Application Form on the website: www.SSNR2012.org, by **May 15, 2012**.

A short CV and a Poster Contribution about your main research topic will be required for the selection process.

ADMISSION: The admission to the School will be decided following a selection made by the General Committee. Earlier registrations will be given priority. Notification of acceptance will be made by June 15, 2012.

www.SSNR2012.org