Preliminary Program

WEDNESDAY, JULY 22, 7 pm - Welcome Reception,

THURSDAY, JULY 23 MORNING

8:00 – 8:15 Opening session
Opening remarks

Symposium 1: Neurophysiological Mechanisms of Motor Control

Chair: John Rothwell

Short presentations:

8:15

Tino Stöckel[1,2], Mark R. Hinder[1]

[1] Human Motor Control Laboratory, School of Medicine, University of Tasmania, Hobart, Australia
[2] Sport & Exercise Psychology Unit, Dept. of Sport Science, University of Rostock, Germany

Insights into the mechanisms mediating cross-limb transfer following unilateral ballistic motor learning

8:30

Benedikt Lauber[1], Albert Gollhofer[1], Wolfgang Taube[2], Martin Keller[2]

[1] Department of Sport Science, University of Freiburg, Freiburg, Germany
[2] Department of Medicin, Movement and Sport Science, Fribourg, Switzerland

Motor imagery of tonic and ballistic contractions activates direct and indirect corticospinal pathways differently but in a similar way than real tonic and ballistic contractions

8:45

M.Ali Akhras[1,2], Gabriel Baud-Bovy[1], Francesco Nori[1]

[1] Istituto Italiano di Tecnologia, Genoa, Italy
[2] University of Genoa, Genoa, Italy

Siffness estimation of metacarpophalangeal joint of index finger and its relationship to extrinsic and intrinsic muscles

9:00-9:15

Coffee break

Invited speakers

9:15

Richard Carson[1,2]

[1] Trinity College Institute of Neuroscience and School of Psychology, Trinity College Dublin, Ireland
[2] School of Psychology, Queen's University Belfast, Belfast, Northern Ireland

Neural pathways mediating cross education of human motor function

9: 45

Robert L. Sainburg

Penn State University and Penn State College of Medicine, USA

Models of Handedness and Brain Lateralization Provide the Basis for Understanding Ipsilesional Motor Deficits in Stroke

10:15-10:30

Coffee Break

10:30

Monica Perez

University of Pittsburgh, USA

Neural Control of Grasping after Spinal Cord Injury

11:00

Winfried Mayr

Medical University of Vienna, Austria

Early and contemporary approaches for application of FES in movement rehabilitation after spinal cord injury

11:30-12:00

General discussion

12:00-14:00

Lunch and Posters

THURSDAY, JULY 23 AFTERNOON

Symposium 2: Learning of skilled behavior

Chair: Robert Scheidt

Short presentations:

14:00

Cosimo Della Santina[1], Matteo Bianchi[2,1], Manolo Garabini[1], Antonio Bicchi[1,2]

[1] Research Center "Enrico Piaggio" - University of Pisa, Pisa, Italy
[2] Department of Advanced Robotics - Istituto Italiano di Tecnologia (IIT), Genova, Italy

Control architecture for human-like motion with applications to soft robotics

14:15

Carla Caballero, David Barbado, Tomás Urbán & Francisco Javier Moreno. Miguel Hernández

University of Elche, (Alicante), Spain.

Interpretation of motor variability depending on feedback availability

14:30

Tarkeshwar Singh, Kayla Goins, Christopher Perry, Troy Herter

University of South Carolina, Columbia, SC.

Practice-related improvements in visuospatial attention drive motor learning in a motor task requiring continuous and simultaneous perceptual, cognitive and motor processing.

14:45-15:00

Coffee Break

Invited speakers:

15:00

Peter J. Beek

VU University Amsterdam, Netherlands

Current insights into motor learning and their applications

15:30

Joachim Hermsdörfer

Institute of Human Movement Science, Department of Sport and Health Sciences, Technische Universität München, Munich, Germany

Anticipatory behavior in object manipulation: Learning and alterations following brain damage

16:00-16:15

Coffee Break

16:15

Elizabeth Torres

Rutgers University, New Brunswick, USA

Distinguishing intent and volition through stochastic signatures of motor output variability

16:45

Robert A. Scheidt[1,2,3]

[1] Biomedical Engineering, Marquette University, USA
[2] Sensory Motor Performance Program, Rehabilitation Institute of Chicago
[3] Physical Medicine and Rehabilitation, Feinberg School of Medicine, Northwestern University

Facilitation and interference in the learning of motor tasks

17:15-17:45

General discussion

18:00: Business meeting of the International Society of Motor Control

Symposium 3: Theoretical Motor Control

Chair: Gregor Schöner

Short presentations:

8:15

Hester Knol[1,2,3], Raoul Huys[1,2,4], Jean-Christophe Sarrazin[3], Viktor Jirsa[1,2,4]

[1] Aix-Marseille Université, Institut de Neurosciences des Systèmes, Marseille, France
[2] INSERM, UMR_S 1106, 27 Bd Jean Moulin, 13385, Marseille Cedex 5, France
[3] ONERA, Systems Control and Flight Dynamics Department, Salon de Provence, France
[4] Centre National de la Recherche Scientifique, France

Quantifying the Ebbinghaus figure effect in perceptual and perceptual-motor contexts.

8:30

Thomas Macaluso[1], Christophe Bourdin[1], Frank Buloup[1], Bernard Gardette[2], Marie-Laure Mille[1], Caroline Nicol[1], Fabrice Sarlegna[1], Patrick Sainton[1], Virginie Taillebot[2], Jean-Louis Vercher[1], Peter Weiss[2], Lionel Bringoux[1] (37)

[1] Aix-Marseille Université, CNRS, ISM UMR 7287, Marseille
[2] COMEX S.A., Marseille, France

Is underwater environment a good way to simulate microgravity? Some cues from arm reaching and postural control

8:45

Radivoj Mandic[1], Sasa Jakovljevic[1], Slobodan Jaric[2,3] (23)

[1] University of Belgrade, Faculty of Sport and Physical Education, The Research Center, Blagoja Parovica 156, Belgrade, Serbia
[2] University of Delaware, Department of Kinesiology and Applied Physiology, USA
[3] University of Delaware, Biomechanics and Movement Science Graduate Program, USA

Performing maximal natural vertical jumps: role of the countermovement depth

9:00-9:15

Coffee Break

Invited speakers:

9:15

Andrea d'Avella[1,2]

[1]Department of Biomedical Sciences and Morphological and Functional Images, University of Messina, Italy [2]Laboratory of Neuromotor Physiology, Santa Lucia Foundation, Rome, Italy

Modularity for motor control and motor learning

9:45

Jeroen Smeets

VU University Amsterdam, Netherlands

The building blocks of prehension

10:15-10:30

Coffee Break

10:30

Katja Kornysheva

Institute of Cognitive Neuroscience, University College London, UK

Neural encoding of spatiotemporal skills

11:00

Gregor Schöner

Institute for Neural Computation, Ruhr-Universität Bochum, Germany

Toward an integrated neural dynamic approach of object-oriented movement

11:30-12:00

General Discussion

12:00 -14:00

Lunch and poster

Symposium 4: Fifty years of equilibrium hypothesis

Chair: Mark Latash

Invited speakers:

14:00

Mark L. Latash

The Pennsylvania State University, University Park, PA, USA

Intentional and Unintentional Movements within the Equilibrium-Point Hypothesis

14:30

Mindy F. Levin

McGill University, Canada

Explanations of disordered motor control based on the EP hypothesis

15:00-15:15 Coffee Break

15:15

Anatol G. Feldman

University of Montreal, Canada

Minimization principles and redundancy problems in the context of referent control of action and perception

15:45

Joseph McIntyre

Tecnalia Health Research Institute, Spain

EP Shifts as the basic building block for human movement

16:15 - Special short presentations for the Fiftieth anniversary of EP

17:00 - 17:30 General Discussion

18:45 - 23:30 Banquet

Symposium 5: Human Machine Interface

Chair: Apostolos Georgopoulos

Short presentations:

8:15

Konrad Stanek[1,2], Hartwig R. Siebner[2], Steffen Angstmann[2], Kristoffer H. Madsen[2], Ole Winther[1]

[1] Technical University of Denmark, DTU Compute, Cognitive Systems, Denmark
[2] Danish Research Center for Magnetic Resonance, Hvidovre Hospital, Denmark

What, When, Whether - the electrophysiological correlates and classification of voluntary action in virtual environment

8:30

Cassie N. Borish[1], Matteo Bertucco[1], Denise J. Berger[3], Andrea d'Avella[3], Terence D Sanger[1,2]

[1] University of Southern California, Los Angeles, CA, USA
[2] Children's Hospital Los Angeles, Los Angeles, CA, USA
[3] Santa Lucia Foundation, Rome, Italy

Using non-negative matrix factorization as a filter to improve usability of myocontrol for children with cerebral palsy

8:45

José Luis Vargas Luna[1,2], Matthias Krenn[3], Simon M. Danner[3], Ursula S. Hofstoetter[3], Karen Minassian[3], Winfried Mayr[3], Thordur Helgason[1]

[1] Health Technology Center, Reykjavik University - Landsptiali University Hospital, Reykjavik, Iceland
[2] Escuela de Ingeniería y Ciencias, Tecnológico de Monterrey, Monterrey, Mexico
[3] Center for Medical Physics and Biomedical Engineering, Medical University of Vienna, Vienna, Austria.

Comparison of cathodic and anodic transpinal electrical stimulation to evoke posterior root-muscle reflexes

9:00-9:15

Coffee break

SATURDAY, JULY 25 MORNING

Invited speakers:

9:15

Ferdinando A. Mussa-Ivaldi

Northwestern University and Rehabilitation Institute of Chicago

Human-machine interfaces: Brain and Body

9:45

Patrick van der Smagt

Technical University of Munich, Germany

From linear to nonlinear movement models

10:15

Coffee break

10:30

Lee Miller

Northwestern University, Chicago, USA

Development of an afferent neural interface designed to mimic natural proprioception

11:00

Apostolos P. Georgopoulos

University of Minnesota, USA

Human Machine Interface: Using Circuit-Based Information (CBI)

11:30-12.00

General Discussion

12:00-14:00

Lunch and poster

Symposium 6: Impaired Motor Control and Rehabilitation

Chair: Zev Rymer

Short presentations:

14:00

Henriette Steiner[1] Zsolt Kertesz[1]

[1]Budapest University of Technology and Economics Department of Control Engineering and Information Technology, Budapest, Hungary

The effects of therapeutic horse riding on the main parameters of gait

14:15

Shashwati Geed[1], Evan Chan[1], Michael Harris-Love[2], Michelle Harris-Love[1,3]

[1] MedStar National Rehabilitation Hospital, Washington DC, USA
[2] Veterans Affairs Medical Center, Washington DC, USA
[3] Georgetown University, Washington DC, USA

Reliability of corticomotor excitability in proximal upper-extremity muscles of moderate- to severely-impaired chronic stroke patients

14:30

Matthew Slimovitch[2,4], Andreanne K. Blanchette[3], Mindy F. Levin[1,2]

[1] School of Physical and Occupational Therapy, McGill University, Montreal, Quebec, Canada
[2] Feil and Oberfeld Research Center, Jewish Rehabilitation Hospital, Center for Interdisciplinary Research in Rehabilitation of the Greater Montreal (CRIR), Montreal, Quebec, Canada
[3] Department of Rehabilitation, Laval University, Quebec, Canada
[4] Faculty of Medicine, McGill University, Montreal, Quebec, Canada

Measurement of upper-limb coordination in chronic stroke subjects

14:45-15:00
Coffee Break

SATURDAY, JULY 25 AFTERNOON

Invited speakers:

15:00

Numa Dancause

University of Montreal, Canada

Plasticity in the ipsi and contralesional motor network following stroke in animals models.

15:30

John Rothwell

UCL Institute of Neurology, London, UK

Can motor recovery in patients after stroke be improved by non-invasive brain stimulation?

16:00-16:15 Break

16:15

Vivian Mushahwar

University of Alberta, Canada

To be announced

16:45

Jozsef Laczko

[1] University of Pécs, Hungary, [2] MTA Wigner Research Centre for Physics, Budapest,
[3] Pázmány Péter Catholic University, Budapest,

Controlling cyclic limb movements in rehabilitation of spinal cord injured individuals

17:15 -17:45
General Discussion

18:00-19:00: Closing and Awards