5th COURSE OF MOVEMENT ANALYSIS

NEUROREHABILITATION AND ROBOTICS
Changing environment to train the function

ROME - ITALY
December 13th - 14th 2007

CONGRESS CENTRE HOTEL MELIÁ
AURELIA ANTICA
Viale degli Aldobrandeschi, 223

Dipartimento di Riabilitazione Pediatrica

Ospedale Pediatrico Bambino Gesù
ISTITUTO DI RICOVERO E CURA A CARATTERE SCIENTIFICO

SAPIENZA
UNIVERSITÀ DI ROMA

SIMFER
SIAMOC

SCIENTIFIC PROGRAMME
R.U.R Rossum’s Universal Robots by the bohemian writer and dramatist Karel Capek, is a romance written in 1920 and is responsible for the origin and the worldwide diffusion of the word "robot": the meaning of this czech term is "android", "artificial worker" and derives from the Slavonic root rabotat (to work).

The word robot, in the modern sense, has been used in the occidental languages since 1923, year of the success of the Capek's piece in the theatres of London.

The origin of the story is an amazing discovery by the scientist-philosophum Rossum, a "crazy wiseman" (rozum means "reason"): he found out the formulation of chemical compound that gives life to the matter. Rossum' nephew, engeneer, uses the compound and produces androids in his industries.

In common use, a robot is a mechanical tool working under human control, and is a substitute or co-worker of the man in items like production and manipulation of heavy and dangerous materials, or in lifethreatening environments, or, simply, with the purpose of leaving free from work the man's life.

Which is the relationship between this story and the rehabilitation? First of all, which the relationship between rehabilitators and this world? Are we Rossum's nephews and is a dream of ours to give life to damaged stuff together with engeneers? Is it impairment's destiny to be completely substituted, "prothesized" by ever more clever machines?

Perhaps in the field of rehabilitation, every day more pressed by technology, there is a need of reflection on the use and meaning of these tools. This course, matching authoritative national and international experiences, helps us to reflect on a main theme: how can technology get into our rehab patients? How can rehabilitator help engeneer to plan therapeutic tools, that are able to contrast or modify the onset of pathological post-lesional patterns, instead of becoming a passive user of celebrated devices?

If the modification of the enviroment is the most accepted way to train the function after a motor-system lesion to the best adaptation, wich objects have we to chose? Which gesture, which goal or theory directs our exercise? How can robotic interface help us?

A definition, concerning robotic devices, exceeding the more familial terms of prothesis and orthesis, has probably yet to be found.

Our effort must to be directed to walk together with this advanced technology without submission, but leading research and clinical uses and sharing the common goal of the real well-being of the patient.
8:00
Registration

9:00
Opening ceremony
F. Silvano, G.F. Bottazzo, T. Langiano
Children's Hospital Bambino Gesù, Rome - Italy
A. Battaglia - Councillor in charge of health services, Latium Region - Italy

9:30 - 13:00
UPPER LIMB REHABILITATION AND ROBOTICS
SESSION 1
Chairmen: F. Benvenuti, C. Bertolini

9:30
Methodological approach in using robotic devices in rehabilitation
E. Castelli

10:00
Rehabilitation Robotics: Applications to Stroke, Cerebral Palsy, Multiple Sclerosis, Spinal Cord Injury
H. I. Krebs

10:30
Research activities of Newman Laboratory for Biomechanics and Human Rehabilitation, Cambridge, MA - U.S.A.
L. Masia

10:45
Discussion

11:00
Coffee break

11:15
Rehabilitation semiotics of upper limb after brain damage: outcome measures and therapeutic approaches
G. Di Rosa

11:45
Synergy between robotic therapy and physiotherapy in neurorehabilitation
P. Morasso

12:15
Research activities of Department of Communication Computer and System Sciences, University of Genoa - Italy
P. Morasso

12:30
Discussion

13:00
Lunch

14:00 - 18:00
UPPER LIMB REHABILITATION AND ROBOTICS
SESSION 2
Chairmen: M. Frascarelli, P. Cappa

14:30
Present and future researches in robotic rehabilitation of upper limb
M. C. Carrozza

15:00
Research activities of Advanced Robotic Technology and System Laboratory - Scuola Superiore S. Anna, Pontedera, Pisa - Italy
M. C. Carrozza

15:15
Clinical use of a robotic prototype to train reaching and grasping functions
M. Petrarca

15:45
Reaching and grasping: project and realization of a robotic prototype
F. Patané

16:15
Discussion

16:30
Coffee break

16:45
Robotic rehabilitation of upper limb in chronic hemiplegic patient
F. Posteraro

17:15
Robotic rehabilitation of upper limb in children
F. Frascarelli, G. Di Rosa

17:45
Discussion

20:30
Evening
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<thead>
<tr>
<th>Time</th>
<th>Session 3: Postural Rehabilitation and Robotics</th>
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<tr>
<td>9:00</td>
<td>Perceptive integration and postural control</td>
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<td>A. Berthoz</td>
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<tr>
<td>9:30</td>
<td>Research activities of Laboratory of Physiology of Perception and Action, Collège de France, Paris</td>
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<td>G. Zanelli</td>
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<td>9:45</td>
<td>Postural control: development and training with a robotized platform prototype</td>
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<td>M. Petrarca</td>
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<td>10:15</td>
<td>Projecting and realizing a robotized platform prototype</td>
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<td>P. Cappa</td>
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<td>10:45</td>
<td>Discussion</td>
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<td>11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:15</td>
<td>Postural control and function in paediatric rehabilitation</td>
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<td>G. Di Rosa, P. Giannarelli</td>
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<td>11:45</td>
<td>Round Table</td>
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<td>Lunch</td>
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<th>Time</th>
<th>Session 4: Clinical Experiences</th>
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<td>14:30</td>
<td>Gait Analysis Laboratory in neurorehabilitation: queries and their possible answers</td>
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<td>M. G. Benedetti</td>
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<td>14:30</td>
<td>A. C. Turconi, L. Piccinini</td>
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<td>14:30</td>
<td>Functional Rehabilitation Department, Scientific Institute &quot;Eugenio Medea&quot;, Bosisio Parini, Lecco - Italy</td>
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<td>14:30</td>
<td>M. Coluccini</td>
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<td>14:30</td>
<td>Gait Analysis Laboratory, Scientific Hospital &quot;Stella Maris&quot; Calambrone, Pisa - Italy</td>
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<td>14:30</td>
<td>E. Guglielmelli</td>
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<td>14:30</td>
<td>Laboratory of Biomedical Robotics &amp; EMC, Campus Bio-Medico University of Rome - Italy.</td>
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<td>14:30</td>
<td>M. Petrarca, S. Rossi</td>
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<td>14:30</td>
<td>Movement Analysis Laboratory, Children's Hospital Bambino Gesù Palidoro, Rome - Italy</td>
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<td>14:30</td>
<td>Discussion</td>
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<td>Learning Test</td>
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<td>E. Castelli</td>
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<td>14:30</td>
<td>Closing Remarks</td>
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Maria Grazia Benedetti
Associate Professor, Movement Analysis Laboratory &
Department of Orthopaedic Surgery
Istituto Ortopedico Rizzoli, University of Bologna - Italy

Francesco Benvenuti
Director of Rehabilitation Department, AUSL 11, Empoli, Tuscany Region
and President of the Italian Society of Clinical Movement Analysis
(SIAMOC) - Italy

Alain Berthoz
Director of the Laboratory of Physiology of Perception
and Action of CNRS, Collège de France, Paris

Carlo Bertolini
Associate Professor, Università Cattolica del Sacro Cuore (Rome) and Past
President of Italian Society of Physical and Rehabilitation Medicine
(SIMFER) - Italy

Paolo Cappa
Full Professor, Department of Mechanics and Aeronautics
Sapienza University of Rome - Italy

Maria Chiara Carrozza
Full Professor, Industrial Bio-Engineering Center
Scuola Superiore S. Anna, Pontedera, Pisa - Italy

Enrico Castelli
Coordinator of the Paediatric Rehabilitation Department
Children's Hospital Bambino Gesù, Palidoro, Rome - Italy

Michele Coluccini
Physiotherapist, Gait Analysis Laboratory
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Giuseppe Di Rosa
MD in charge of Movement Analysis Laboratory
Paediatric Rehabilitation Department
Children's Hospital Bambino Gesù, Palidoro, Rome - Italy

Flaminia Frascarelli
MD Researcher, Paediatric Rehabilitation Department
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Massimo Frascarelli
President of University Course in Occupational Therapy (Viterbo)
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Versilia Hospital AUSL 12, Viareggio, Lucca - Italy

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Sapienza University of Rome - Italy

Anna Carla Turconi
Director of Functional Rehabilitation Department
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Engineer, Department of Mechanics and Aeronautics
Sapienza University of Rome - Italy
REGISTRATION

Registration fees:

€ 200,00 Medical doctors, Engineers
€ 180,00 SIMFER, ESMAC, SIAMOC Members, Physiotherapists and TNPEE
€ 50,00 Students

including:

- participation in the scientific sessions
- congress kit
- coffee breaks,
- lunches (excluded students)
- participation certificate.

The first 200 applications received by the Congress Secretariat within the deadline of December 7th, 2007 will be accepted.

Languages

Italian and English (simultaneous translation)

Event

December 13th 2007 (contribution € 30, 00)

Modalities of payment

Payment must be made upon registration, by:

- Bank Transfer to "Ospedale Pediatrico Bambino Gesù, Roma"
  Banca di Roma, Ag. 61 - account n. 000000350036
  Cod. ABI 03002 - CAB 03361 - CIN N

Payment receipt and registration form have to be sent via fax to the Congress Secretariat. Confirmation of registration is due to be up to date with one's payment.

Continuing medical education (CME)

The quality of continuing education will be rated by the CME system of the Italian Accreditation Council for Continuing Medical Education.

At the end of the Course a learning test will be given to the participants to be filled in.

Congress Secretariat

ADMINISTRATIVE COORDINATION OF SCIENTIFIC EVENTS
Ospedale Pediatrico Bambino Gesù
Piazza S. Onofrio, 4
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e-mail: congressi@opbg.net - www.ospedalebambinogesu.it

SCHEDA DI ISCRIZIONE

5th Course of Gait Analysis
NEUROREHABILITATION AND ROBOTICS
Changing environment to train the function
Rome - Italy, December 13th - 14th 2007

Please read the enclosed personal data processing policy (Decree Law 196/03, art. 13) before signing. The aim of this policy is to inform you about objectives and methods in handling your personal data. Therefore, you will be informed of third parties to whom your personal data will be or may be transmitted. Please read the personal data processing policy carefully before signing the following statement.

☐ € 200,00 MEDICAL DOCTORS, ENGINEERS
☐ € 50,00 STUDENTS
☐ € 180,00 SIMFER, ESMAC, SIAMOC Members, Physiotherapists and TNPEE
☐ € 30,00 Evening on December 13th 2007

(Please write in capital letters)

NAME ...........................................SURNAME .................................................
DATE OF BIRTH ............................PLACE OF BIRTH ....................................
PROFESSION ............................................................................................................
ADDRESS ..................................................................................................................
TOWN/CITY ................................STATE ................................ZIP CODE ..............
DEPARTMENT/DIVISION/AREA ..............................................................
HOSPITAL/UNIVERSITY/INSTITUTE .........................................................
ADDRESS...........................................................TOWN/CITY............................
STATE...........................................................ZIP CODE ..............................
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I declare to have carefully read the privacy statement about personal data and to give my consent to the processing and communication of my personal data for the objective and with the method quoted in the report.

The undersigned _________________________

I give my consent to Bambino Gesù Children's Hospital to use my personal data to keep me updated on projects and congress activities by post or e-mail.

The undersigned _________________________
Information on personal data processing carried out by the Bambino Gesù Children's Hospital, based on what provided in art. 13 of legislative decree n. 196/2003 concerning personal data protection and privacy.

The Bambino Gesù Children's Hospital would like to inform you that legislative Decree N. 196 of June the 30th ("Code about personal data protection") sets a series of regulations to assure personal data protection. The Hospital, in accordance with the mentioned decree, will process all personal data you provide upon registration to the course, only with the purpose of managing all aspects (accounting, didactic, etc.) of the relation with you.

Based on art. 13 of the above mentioned decree, the Hospital is bound to provide you with the following information:

The data you provide will be handled by persons expressly in charge (Hospital employees or collaborators). Data will be disclosed to:
- other individuals, in accordance with the provisions in force;
- other individuals for the supply of services of various kinds (accounting mailing, bank services, etc.)
- only upon specific request, to the judicial authority;

These same data will not be diffused.

Data subjects will be entitled to exercise their rights in compliance with what provided in art. 7 of the above mentioned legislative decree, i.e. they will be entitled to access their own data, to request their updating, amendment, integration, or deletion, if data are incomplete, erroneous, or have been collected against the law. Moreover, data subjects will be entitled to prevent the processing of their own data, for legitimate reasons. Such requests should be addressed to Ospedale Pediatrico Bambino Gesù, "Coordinamento Amministrativo Manifestazioni Scientifiche", Piazza S. Onofrio, 4 - 00165 Roma - Italy.

The data controller is the Bambino Gesù Children's Hospital IRCCS (Research Hospital), with Headquarters in Rome, Piazza S. Onofrio, n° 4.
Coordinamento Amministrativo Manifestazioni Scientifiche
Ospedale Pediatrico Bambino Gesù

Piazza S. Onofrio, 4 - 00165 Roma.

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