

ICNR 2012

CONFERENCE PROGRAM

	Tuesday 13			Wednesday 14			Thursday 15			Friday 16			Saturday 17					
	ROOMS →			S. JUAN	GUADALAJ.	S. JUAN	AUDITORIUM	MANCHA 1	S. JUAN	AUDITORIUM	MANCHA 1	S. JUAN	AUDITORIUM	MANCHA 1	MANCHA 1	MANCHA 2	GRECO	VELAZQUEZ
8	Bus from Hotel Beatriz to external workshops			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
9				Plenary lecture: Prof. Volker Dietz			SS4 (I)	no session	OS9	Plenary lecture: Prof. M. Chiara Carrozza								
10				OS2	OS7	OS1	Coffe break			OS10	SS8	no session						
11				Coffe break			Plenary lecture: Prof. Gregoire Courtine			Coffe break								
12				SS6	SS10	OS5	SS4 (II)	Round Table 3 (ICORR)	OS6	SS2	Round Table 4 (ESPRM)	no session						
13	WS1 + VISIT	WS2 + VISIT	WS3 + VISIT															
14	Lunch																	
15				Plenary lecture: Prof. Jane Burridge			Plenary lecture: Prof. Donatella Mattia			Plenary lecture: Prof. Nigel Lovell			All plenary lectures will be held in the AUDITORIUM					
16				OS3 (I)	SS9	SS5 (I)	Poster session			SS3	OS4	SS1						
17				Coffe break			Coffe break			Coffe break								
18				OS3 (II)	no session	SS5 (II)	Poster session			Round Table 1 (Innov.)	Round Table 5 (Careers)	SS7						
19	Bus back to Hotel Beatriz																	
20							Bus to "Cigarral de las Mercedes"											
21	Welcome cocktail			Night Tour			Gala dinner											

Theme	Session name	Day	Time	Room	Session type	Chairs
Theme 1 - Neurorobotics & prosthetics	OS2- Foundations for Rehabilitation Robotics in Clinical practice	We14	9:30-11	JUAN DE LOS REYES	ORAL	A. Gil, M. Molinari
	OS3- Neuroprosthetics (I)	We14	16-17:30	JUAN DE LOS REYES	ORAL	S. Micera, T. Keller
	OS3- Neuroprosthetics (II)	We14	18-19:30	JUAN DE LOS REYES	ORAL	D. Popovic, T. Keller
	SS3- Wearable Rehabilitation Robotics	Fr16	16-17:30	JUAN DE LOS REYES	SPECIAL	E. Rocon, N. Vitiello
	SS4- Control strategies in rehabilitation robotics (I)	Th15	8:30-10	JUAN DE LOS REYES	SPECIAL	A. Casals, J. Amat
	SS4- Control strategies in rehabilitation robotics (II)	Th15	11:30-13	JUAN DE LOS REYES	SPECIAL	A. Casals, J. Amat
	SS6- How to translate FES from the research to practice	We14	11:30-13	JUAN DE LOS REYES	SPECIAL	D. Popovic, F. Brunetti
P1- Poster Session	Th15	16-19:30		POSTER		
Theme 2 - Neurosignals modeling and processing	OS5- Biofeedback in neurorehabilitation	We14	11:30-13	MANCHA 1	ORAL	J.C. Moreno, J. Belda
	OS6- Neuromotor models	Th15	11:30-13	MANCHA 1	ORAL	D. Torricelli, J. Taylor
	SS8- Sensory Restoration	Fr16	9:30-11	AUDITORIUM	SPECIAL	E. Fernández, S. Rosahl
	P2- Poster Session	Th15	16-19:30		POSTER	
Theme 3 - Brain-neural interfaces	OS1- BCI for Neurorehabilitation	We14	9:30-11	MANCHA 1	ORAL	J.M. Azorin, M. D. del Castillo
	OS9- Neuromodulation	Th15	8:30-10	MANCHA 1	ORAL	D. Farina, S. Shimoda
	OS10- Assessment of motor status	Fr16	9:30-11	JUAN DE LOS REYES	ORAL	J. Belda, J.C. Moreno
	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	Fr16	11:30-13	JUAN DE LOS REYES	SPECIAL	S. Shimoda, K. Kitajo
	P3- Poster Session	Th15	16-19:30		POSTER	
Theme 4 - Biomechanics & movement analysis	OS4- Biomechanics in rehabilitation	Fr16	16-17:30	AUDITORIUM	ORAL	A. Gil, J. Belda
	SS5- Movement analysis techniques in rehabilitation (I)	We14	16-17:30	MANCHA 1	SPECIAL	A. Cereatti, C. Mazzà
	SS5- Movement analysis techniques in rehabilitation (II)	We14	18-19:30	MANCHA 1	SPECIAL	A. Cereatti, C. Mazzà
	P4- Poster Session	Th15	16-19:30		POSTER	
	Theme 5 - Novel rehabilitation paradigms	OS7- Neuromotor facilitation	We14	9:30-11	AUDITORIUM	ORAL
SS1- Games and Creativity for NeuroRehabilitation		Fr16	16-17:30	MANCHA 1	SPECIAL	A. De Mauro, F. Molina Rueda
SS7- Cognitive and Social Rehabilitation using Assistive Technologies		Fr16	18-19:30	MANCHA 1	SPECIAL	R. Raya, M. Pajaro
SS9- Moving rehabilitation at home: how technology can answer to the clinical needs		We14	16-17:30	AUDITORIUM	SPECIAL	A. Borghese, L. Rocchi
SS10- Neurorehabilitation Technology: a joint technical, clinical, and basic effort		We14	11:30-13	AUDITORIUM	SPECIAL	V. Dietz, S. Micera
P5- Poster Session		Th15	16-19:30		POSTER	
Pre-conf Workshops + VISIT	WS1- Emerging therapies in Spinal Cord Injury + VISIT	Tu13	Full-day	External	WORKSHOP	A. Gil
	WS2- Emerging Therapies in Stroke + VISIT	Tu13	Full-day	External	WORKSHOP	J.C. Miangolarra, R. Cano, I. Alguacil
	WS3- Rehabilitation robotics for pediatric applications + VISIT	Tu13	Full-day	External	WORKSHOP	P. Bonato, N. Martinez
Pre-conf Workshops	WS5- Challenges for human centered assistive neuro-robotic devices: experience of the Mundus project	Tu13	8:30-13	JUAN DE LOS REYES	WORKSHOP	A. Pedrocchi, G. Ferrigno
	WS6- Creating Intelligent Rehabilitation Technology: An Interdisciplinary Effort	Tu13	8:30-13	GUADALAJARA	WORKSHOP	R. H. Wang, B. J. Boger, B. Taati
	WS7- Extracting the neural strategies from the EMG and implications for myocontrol in neurotechnologies	Tu13	15-19	JUAN DE LOS REYES	WORKSHOP	D. Farina, A. Holobar
Post-conf Workshops	WS13- Engineering solutions for vestibular disorder symptoms: the CLONS project	Tu13	15-19	GUADALAJARA	WORKSHOP	J. DiGiovanna, N. Guinand, S. Micera
	WS9- Muscle synergies: from neurophysiological hypothesis to clinical tool	Sa17	8:30-13	MANCHA 1	WORKSHOP	D. Torricelli, M. Molinari
	WS10- Brain-Computer Interfaces for Rehabilitation	Sa17	8:30-13	MANCHA 2	WORKSHOP	T. Solis-Escalante, R. Scherer, G. Müller-Putz
	WS11- Clinical Neurorehabilitation based on Neuromodulation Interventions	Sa17	8:30-13	GRECO	WORKSHOP	J. Mínguez, C. Escolano, E. López
	WS12- Enhancing communication and computer access via assistive technology in Complex Communication Needs	Sa17	8:30-13	VELAZQUEZ	WORKSHOP	L. Azevedo, R. Ceres
Round Table 1	Technological Innovations in Neurorehabilitation in stroke: policies and strategies	Fr16	18-19:30	JUAN DE LOS REYES	ROUND TABLE	J.C. Moreno
Round Table 3	ICORR	Th15	11:30-13	AUDITORIUM	ROUND TABLE	R. Loureiro
Round Table 4	Official session of The European Society of Physical & Rehabilitation Medicine (ESPRM)	Fr16	11:30-13	AUDITORIUM	ROUND TABLE	E. Varela Donoso
Round Table 5	Training and careers in Biomedical Engineering	Fr16	18-19:30	AUDITORIUM	ROUND TABLE	J.L. Pons
Plenary Lecture 1	Volker Dietz	We14	8:30-9:30	AUDITORIUM	PLENARY	J.L. Pons
Plenary Lecture 2	Jane Burridge	We14	15-16	AUDITORIUM	PLENARY	M. Akay
Plenary Lecture 3	Gregoire Courtine	Th15	10:30-11:30	AUDITORIUM	PLENARY	J.L. Pons
Plenary Lecture 4	Donatella Mattia	Th15	15-16	AUDITORIUM	PLENARY	A. Gil
Plenary Lecture 5	M. Chiara Carrozza	Fr16	8:30-9:30	AUDITORIUM	PLENARY	J.L. Pons
Plenary Lecture 6	Nigel Lovell	Fr16	15-16	AUDITORIUM	PLENARY	M. Molinari

Theme 1 - Neurorobotics & prosthetics

Oral Session	OS2- Foundations for Rehabilitation Robotics in Clinical practice		Day	Time
	Paper ID	Title	Authors	We14
16	Time Course of Recovery During Robotic Neurorehabilitation of the Upper Limb in Sub-acute and Chronic Stroke Patients	Roberto Colombo, Irma Sterpi, Carmen Delconte, Alessandra Mazzone and Fabrizio Pisano.		
21	The effect of an arm support device on recovery of arm-hand function in sub-acute stroke: a randomized controlled trial	Anke Kottink, Gerdienke Prange, Jaap Buurke and Johan Rietman		
35	Learning a locomotor task: with or without errors?	Jasmin Schneider, Lukas Jaeger, Christoph Hollnagel, Robert Riener and Laura Marchal-Crespo		
52	Towards an integrated approach to multimodal assistance of stroke patients based on the promotion of intentionality	Pietro Morasso		
130	Robotic-assisted gait training in children with cerebral palsy in clinical practice	Marta Pajaro Blázquez, Runzun Shetye, Jaime Gallegos Salazar and Paolo Bonato		
137	Selection of optimal candidate for patients with stroke involved in the robotic therapy for walking recovery: characterization of clinical and psychological features	Giovanni Morone, Marco Iosa, Augusto Fusco, Maura Bragoni, Domenico De Angelis, Marco Broccoli, Vincenzo Venturiero, Paola Coiro, Luca Pratesi, and Stefano Paolucci		

Oral Session	OS3- Neuroprosthetics (I)		Day	Time
	Paper ID	Title	Authors	We14
3	Cortically Controlled Electrical Stimulation for Locomotion of the Spinal Cord Injured	Monzurul Alam and Jufang He		
13	Early Detection of Epileptic Seizures in Pigs based on Vagus Nerve Activity	Thomas Nørgaard Nielsen, Johannes Jan Struijk, Kristian Rauhe Harreby and Cristian Sevcencu		
97	Classification of Simultaneous, Dynamic Motions with Surface EMG	Jakob C. Rosenvang, Ronnie W. Horup, Kevin B. Englehart, Winnie Jensen and Ernest N. Kamavuako		
101	Nonlinear analysis of electromyogram following neuromuscular electrical stimulation-assisted gait training in stroke survivors	Anirban Dutta, Bhawna Khattar and Alakananda Banerjee		

Oral Session	OS3- Neuroprosthetics (II)		Day	Time
	Paper ID	Title	Authors	We14
112	Advances in the Assessment and Suppression of Pathological Tremor in the framework of TREMOR Project	Juan Alvaro Gallego, Eduardo Rocon and José Luis Pons		
124	Decoding Grasp Types from the Monkey Motor Cortex and On-line Control of a Dexterous Artificial Hand	Marco Controzzi, Yaoyao Hao, Qiaosheng Zhang, Christian Cipriani, Shaomin Zhang, Weidong Chen, Maria Chiara Carrozza and Xiaoxiang Zheng		
154	A novel assessment device to quantify vestibular function	Lorenzo Bassi Luciani, Vincenzo Genovese, Vito Monaco and Silvestro Micera		
164	Comparison of stimulation selectivity in monopolar and bipolar configuration using the Transversal Intrafascicular Multichannel Electrode (TIME) - Preliminary results	Paweł Maciejasz, Jordi Badia, Tim Boretius, Kristian Rauhe Harreby, Winnie Jensen, Thomas Stieglitz, Xavier Navarro and David Guiraud		

Special Session	SS3- Wearable Rehabilitation Robotics		Day	Time
	Paper ID	Title	Authors	Fr16
79	Development of a Exoskeleton for Lower Limb Rehabilitation	Magdo Bortole and José Luis Pons		
85	Analysis of the forces on the finger joints by a joint-less wearable robotic hand, SNU Exo-Glove	Hyunki In and Kyu-Jin Cho		
91	Optimization of Lower Extremity Kinetics During Transfers Using a Wearable, Portable, Robotic Lower Extremity Orthosis: a Case Study	Joshua Vose Md, Arlene McCarthy Pt Ms Dpt Ncs and Robert Horst Phd		
171	Effect of wearable robotic leg orthosis on the weight bearing symmetry during sit-to-stand in individuals Post-stroke	Shilpa Patil,Carolynn Patten and Theresa McGuirk		
185	Effects of 'Intention-based' Robotic Exoskeleton on Muscle Activation Patterns During Overground Walking	Carolynn Patten, Theresa McGuirk and Shilpa Patil		

Special Session	SS4- Control strategies in rehabilitation robotics (I)		Day	Time
	Paper ID	Title	Th15	8:30-10
	33	Control Strategies for Robot-Assisted Training - Literature Review and Experimental Impressions	Laura Marchal-Crespo	
	47	Adaptive Control in Neurorehabilitation	Alicia Casals	
	63	Upper limb robot-assisted therapy in chronic and subacute stroke patients: a kinematic analysis	Stefano Mazzoleni, Patrizio Sale, Micol Tiboni, Marco Franceschini, Federico Posteraro and Maria Chiara Carrozza	
	65	Skeletal Muscle Contraction Control and Tracking Using an Adaptive Augmented PI Control Approach	Paola Jaramillo, Adam Shoemaker and Alexander Leonessa	
	181	Effect of gravity compensation on upper limb muscle synergies during reaching: preliminary results from healthy subjects	Martina Coscia, Vincent C. K. Cheung, Peppino Tropea, Caoimhe Bennis, Alexander Koenig, Vito Monaco, Silvestro Micera and Paolo Bonato	
		5 minutes presentation from Silver Sponsor	Barrett Technology Inc.	

Special Session	SS4- Control strategies in rehabilitation robotics (II)		Day	Time
	Paper ID	Title	Th15	11:30-13
	25	Pilot Study on Following and Resisting Forces on the Pelvis	Jos H. Meuleman, Reinoud A. Kruijthof, Edwin H.F. van Asseldonk and Herman van der Kooij	
	119	Hybrid FES-robot cooperative control of ambulatory gait rehabilitation exoskeleton for spinal cord injured users.	Antonio J. Del-Ama, Juan C. Moreno, Ángel Gil-Agudo and José L. Pons	
	123	Effectiveness of the LOwer extremity Powered ExoSkeleton (LOPES) robotic gait trainer on ability and quality of walking in SCI patients	Bertine M. Fleerkotte, Jacob H. Buurke, Bram Koopman, Leendert Schaake, Herman Van der Kooij, Edwin H.F. Van Asseldonk and Johan S. Rietman	
	131	Neuromuscular control of dynamic joint stabilization with a knee brace: Implications to improve muscle and balance control	Guillermo Asín, Nuria Bonsfills, Enrique Gómez-Barrena, Almudena Fernández-Bravo, Juan C. Moreno and José L. Pons	
	140	Fuzzy Logic Based FES Driven Cycling By Stimulating Single Muscle Group	Shwan Abdulla and Osman Tokhi	

Special Session	SS6- How to translate FES from the research to practice		Day	Time
	Paper ID	Title	We14	11:30-13
	103	Customizing functional electrical therapy using a 'Rehabilitation Problem-Solving Form' - a preliminary study	Alakananda Banerjee, Robins Kumar, Bhawna Khattar, Rajshekhar Reddi and Anirban Dutta	
	106	Does anode position and electrode impedance affect muscle selectivity in upper limb sFES?	Aikaterini D. Koutsou, Eduardo Rocón De Lima and Jose L. Pons	
	122	Muscle Activation Pattern and Weight Bearing of Limbs during Wheelchair Transfers in Healthy Individuals- a step towards Lower Limb FES Assisted Transfer for Paraplegics	Nissan Kunju, George Tharion, Suresh Devasahayam and M Manivannan	
	165	Control of Walking in Unilateral Drop Foot Using Artificial Neural Networks and Hybrid LMA-PSO Training Algorithm	Neda Kordjazi, Hamid Reza Kobravi, Hossein Asghar Hosseini and Ali Firouzabadi	
	183	Assisting Persons after Stroke to Restore Gait: Hybrid System	Dejan Popovic, Aleksandar Veg, Aleksandra Dragin, Ljubica Konstantinovic, Nadica Miljkovic and Milica Djuric Jovicic	

Poster Session	P1 - Poster Session		Day	Time
			Th15	16-17:30
				18-19:30
Paper ID	Title	Authors		
15	Preliminary Results From the Use of the SOFTROBOT Platform in Stroke Patients	Carlos Rodríguez-Guerrero, Alicia Hernando Rosado, Paulina Oliva, Juan Carlos Fraile-Marinero and Pedro Virgilio Rivera Farina.		
17	Lokomat training, cervical versus thoracic spinal cord injuries. Comparative study.	Mónica Alcobendas, Ana Esclarín and Rosa Casado		
19	Exoskeletal Neuro-Rehabilitation in Chronic Paraplegic Patients – Initial Results	Mirko Aach, Tomohiro Hayashi, Irene Lange, Renate Meindl, Martin Tegenthoff, Peter Schwenkreis, Volkmar Nicolas, Yoshiyuki Sankai and Thomas Schildhauer		
68	Customized Robot Aided Gait Training for NeuroRehabilitation	Shahid Hussain and Sheng Xie		
83	NASA-TLX Assessment of Modern Close Loop Controllers in Haptic Guidance for Assisted Rehabilitation	Jose Andres Turijan and Francisco J Ruiz-Sanchez		
110	Ursus: a robotic assistant for training of children with motor impairments	Cristina Suarez-Mejías, Carmen Echevarría, Pedro Nuñez, Luis Manso, Pablo Busto, Sandra Leal and Carlos Parra		
126	Design of a pediatric exoskeleton for the rehabilitation of the physical disabilities caused by cerebral palsy	Marina Canela Respuela and Jose Luis Pons Rovira		
150	Augmenting Rehabilitation after Stroke: A Flexible Platform for Combining Multi-channel Biofeedback with FES	Subhasis Banerji, John Heng, P S Ponvignesh and Daphne D. Menezes		
167	Robotic Design of an Upper Limb Exoskeleton for Motion Analysis and Rehabilitation of Paediatric Neuromuscular Disorders	Alejandro Lugo-Villeda, Francisco J. Ruiz-Sánchez, Omar Dominguez-Ramirez and Vicente Parra Vega		
177	Multimodal Robotic Device to assistive and rehabilitation tasks	Francisco J. Badesa, Ricardo Morales, Nicolas Garcia-Aracil, Jose Maria Sabater, Eugenia Papeleo, Loredana Zollo and Eugenio Guglielmelli		
179	Switching between the modes of control: Implications for the closed loop control of prostheses	Marko Markovic, Strahinja Dosen and Dario Farina		
186	Functional Electrical Stimulation Controller based on Muscle Synergies	Walter Denis, Fernando Brunetti, Stefano Piazza, Diego Torricelli and José Luis Pons		
201	Body Mass Index as a Parameter in a Motor Adaptation Process	Svetlana Grosu, Kristel Knaepen, Eva De Becker, Michael Van Damme, Bram Vanderborght, Romain Meeusen and Dirk Lefeber		

Theme 2 - Neurosignals modeling and processing

Oral Session	OS5- Biofeedback in neurorehabilitation		Day	Time
			We14	11:30-13
Paper ID	Title	Authors		
53	A Rehabilitation Robot for Training based on Visual Feedback Distortion	Patrick Weiss, Marcus Heldmann, Thomas Münte, Achim Schweikard and Erik Maehle		
70	On feasibility of gaze and facial component tracking during robot assisted walking	Simon Zelič, Ales Holobar and Matjaz Divjak		
87	Motor Learning in Children with Cerebral Palsy with Feedback of Principal Component Space of Reduced Dimension	Citlali Lopez-Ortiz, Julia Simkowski, Wendolyn Gomez, Nikolay Stoykov and Deborah Gaebler-Spira		
116	A Comparison between Influence of Visual and Haptic Feedback on Jerk Indicators in Hand Exercises	Baldassarre D'Elia, Maurizio Schmid, Ivan Bernabucci and Tommaso D'Alessio		
146	Development of an Experimental Set-up for Providing Lower-Limb Amputees with an Augmenting Feedback	Simona Crea, Nicola Vitiello, Stefano Marco Maria De Rossi, Tommaso Lenzi, Marco Donati, Christian Cipriani and Maria Chiara Carrozza		

Oral Session	OS6- Neuromotor models		Day	Time
			Th15	11:30-13
Paper ID	Title	Authors		
9	Knee muscle fatigue estimation during isometric artificially elicited contractions in incomplete spinal cord injured subjects.	Antonio J. Del-Ama, Elisabeth Bravo-Esteban, Juan C. Moreno, Julio Gómez-Soriano, Stefano Piazza, Aikaterini D. Koutsou, Ángel Gil-Agudo and Jose L. Pons		
59	Animal model to investigate the role of the motor cortex during treadmill locomotion in rats	Jakob Skriver Routhe, Marko Jörg Niemeier, Hans Christian Riis, Gynter Schneider and Winnie Jensen		
89	Modeling Fatigue Effect in an EMG-Driven Hill Type Muscle Model during Dynamic Contractions	Diana Ruiz Bueno and Luis Montano		
111	Inverse Estimation of Multiple Muscle Activations under Isokinetic Condition	Zhan Li, Mitsuhiro Hayashibe and David Guiraud		

Special Session	SS8- Sensory Restoration		Day	Time
			Fr16	9:30-11
Paper ID	Title	Authors		
32	Influence of myofascial therapy applied to the cervical region of patients suffering from unilateral spatial neglect and head deviation with respect to the median line	Ana Vaquero Rodríguez		
51	Perception of Animated Spectrogram of Speech, A Multi-Word Test	Somayeh Bazin and Ali Asghar Soltani Farani		
78	Objective Assessment of A New Olfactory Rehabilitation Approach in Adults with Olfactory Impairments using Functional Magnetic Resonance (fMRI)	Susana Borromeo, Cristina Gomez-Calero, Elena Molina, Javier Fernandez-Huete, Nieves Martinez-Monge, Adolfo Toledano, Guillermo Luna and Juan Antonio Hernandez-Tamames		
139	The HyVE: Hybrid Vibro-Electrotactile stimulation for sensory feedback in upper limb prostheses	Marco D'Alonzo, Strahinja Dosen, Christian Cipriani and Dario Farina		
195	Designing sensory neural prostheses - Lessons to learn from auditory brainstem implants	Steffen Rosahl, Christos Pantazis and Sybille Rosahl		
196	Visual Neuroprosthesis: the relevance of plasticity	A Alfaro and Eduardo Fernández		

Poster Session	P2 - Poster Session		Day	Time
			Th15	16-17:30 18-19:30
Paper ID	Title	Authors		
18	In vitro large polyfascicular nerve model for assessment of fascicular recruitment characteristics of peripheral nerve interfaces	Kristian Rauhe Harreby, Cristian Sevcencu and Winnie Jensen		
36	A Motion Library for Robot-based Upper Limb Rehabilitation	Frank Domroes, Denis Stoerkle, Josef Ilmberger and Bernd Kuhlenkoetter.		
38	Decoding Upper Limb Movement Velocity for Stroke Rehabilitation	Enrique Hortal, Eduardo Iáñez, Andrés Úbeda, Daniel Tornero and José M. Azorín		
48	Chronic electrochemical investigation of titanium nitride stimulation electrodes in vivo	Suzan Meijs, Morten Fjorback and Nico Rijkhoff		
107	Hybrid Neuromusculoskeletal Modeling	Massimo Sartori, Dario Farina and David Lloyd		
125	Protocol and system for spastic behavior simulation through the generation of cutaneous reflexes	Francisco Resquín, Elisabeth Bravo, Julio Gómez-Soriano, Fernando Brunetti and José Luis Pons		
141	Towards Improving the Usability of Electromyographic Interfaces	Hugo Silva, Reinhold Scherer, Joana Sousa and Ana Londral		
156	Preliminary result from a multimodal interface for cerebral palsy users based on eye tracking and inertial technology	Alejandro Clemotte, Rafael Raya, Ramón Ceres and Eduardo Rocon		
157	Simulation of the Muscle Recruitment by Transcutaneous Electrical Stimulation in a Simplified Semitendinosus Muscle Model	José David Gómez Tames, José González, Shuto Nakamura and Wenwei Yu		
159	Ultrasound Imaging and Analysis of Muscle Activity in Lower Limb	Nakamura Shuto, Jose David Gomez-Tames, Jose Gonzalez, Ojima Sho, Yamaguchi Tadashi and Wenwei Yu		
169	Evaluation of IMU ZigBee Sensors for Upper Limb Rehabilitation	Carlos A. Cifuentes G., Ariel Braidot, Melisa Frisoli, Alfonso Santiago, Anselmo Frizera and Juan Moreno		
175	Postural Synergies and Neural Network for Autonomous Grasping: a Tool for Dextrous Prosthetic and Robotic Hands	Fanny Ficuciello, Gianluca Palli, Claudio Melchiorri and Bruno Siciliano		
187	Case-Mix analysis of patients referred from the Public Health Services of Extremadura (SES) to the Monographic Rehabilitation Center for brain injury	Jose María Porto-Payán, Lorena María Lérida-Benítez, Ana María Roa-Montero, Albert Giménez-Soria, Manuel Menchón-Bofill and Cristina Tobón-Arbeláez		
197	MAXSENS: A flexible matrix electrode for sensory substitution	Lana Popovic-Maneski, Strahinja Dosen and Goran Bijelic		

Theme 3 - Brain-neural interfaces

Oral Session	OS1- BCI for Neurorehabilitation	Day	Time
		We14	9:30-11
Paper ID	Title	Authors	
37	Error Potential Detection to Assist Movement Intention Decoding in Stroke Patients	Joaquín López, Andrés Úbeda, Eduardo Iáñez, José M. Climent and José M. Azorín	
39	EMG topography of low back muscles as a tool for posture evaluation and for the assessment of lumbalgia treatments progress	Nadica Miljkovic, Haritz Zabaleta, Cristina Rodriguez-De-Pablo, Thierry Keller and Gonzalo Garcia	
62	Randomized Controlled Trial to Evaluate a BCI-Supported Task-Specific Training for Hand Motor Recovery after Stroke	Floriana Pichiorri, Giovanni Morone, Iolanda Pisotta, Marco Secci, Febo Cincotti, Stefano Paolucci, Marco Molinari and Donatella Mattia	
136	Classification of stance and swing gait states during treadmill walking from non-invasive scalp electroencephalographic (EEG) signals	Fernando San Martin Jorquera, Sara Grassi, Pierre-André Farine and Jose Luis Contreras-Vidal	
162	Motor imagery driven BCI with cue-based selection of FES induced grasps	Andrej M. Savic, Nebojsa B. Malesevic and Mirjana B. Popovic	

Oral Session	OS9- Neuromodulation	Day	Time
		Th15	8:30-10
Paper ID	Title	Authors	
96	Improved gait symmetry in hemiparetic patients following gait rehabilitation supported by activation of the nociceptive withdrawal reflex	Erika G. Spaich, Niels Svaneborg and Ole K. Andersen	
105	« Awake surgery » of slow-growing tumors and cortical excitability measured by EEG recordings. Preliminary results.	François Bonnetblanc, Guillaume Herbet, Pom Charras, Mitsuhiro Hayashibe, David Guiraud, Hugues Duffau and Bénédicte Poulin-Charronnat	
118	Virtual cerebellar lesions influence verbal working memory: A tDCS study	Katja Macher, Andreas Böhringer, Jürgen Dukart, Arno Villringer and Burkhard Pleger	
152	A simulation study to characterize the effects of frequency modulation during epidural electrical stimulation	Marco Cempini, Gunter Kanitz, Marco Capogrosso, Stanisa Raspopovic and Silvestro Micera	
174	Tremor suppression using electromyography and surface sensory electrical stimulation	Strahinja Dosen, Jakob Dideriksen, Eduardo Rocon, Jose Pons and Dario Farina	

Oral Session	OS10- Assessment of motor status	Day	Time
		Fr16	9:30-11
Paper ID	Title	Authors	
4	Effects of bimanual motor learning on unimanual performance	Matic Trlep, Matjaž Mihelj and Marko Munih	
61	On repeatability of motor unit characterization in pathological tremor	P. Povalej Bržan, J. Gallego, D. Farina and A. Holobar	
92	Fast forms of central fatigue account for decreases in rate of execution during fast and short repetitive motor tasks	Pablo Arias, Verónica Robles-García, Yoanna Corral-Bergantiños, Nelson Espinosa, Kenneth L Grieve, Casto Rivadulla, Antonio Oliviero and Javier Cudeiro	
127	Intersegmental synchronization of spontaneous cord dorsum potentials as a clinical parameter to evaluate changes in neuronal connectivity produced by peripheral nerve and spinal cord damage.	Mario Martin, Diógenes Chávez, Javier Béjar, Gennaro Esposito, Érika Rodríguez, Ulises Cortés and Pablo Rudomín	
151	Analysis of EEG Signal to Detect Motor Command Generation Towards Stroke Rehabilitation	Yoshikatsu Hayashi, Kiyoshi Nagai, Koji Ito, Slawomir Nasuto, Rui Loureiro and William Harwin	

Special Session	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	Day	Time
		Fr16	11:30-13
Paper ID	Title	Authors	
5	Voluntary and Reflex Muscle Synergies in Upper Limbs	Tytus Wojtara, Fady Alnajjar, Shingo Shimoda and Hidenori Kimura	
6	The Rule of the Dependency Level of the Sensory Synergy in Recruiting Muscle Synergy	Fady Alnajjar, Tytus Wojtara, Shingo Shimoda and Hidenori Kimura	
64	Manipulative Evaluation of Alpha Bottom-up Networks in the Resting-state by Combined TMS-EEG	Masahiro Kawasaki, Yuji Mizuno and Keiichi Kitajo	
66	Trajectory optimization by Tacit learning	Shingo Shimoda and Hidenori Kimura	
104	Changes in corticospinal excitability following the use of a BCI based protocol combined with sham visual feedback	Signe Kristensen, Imran Khan Niazi, Mads Jochumsen, Ning Jiang, Dario Farina and Natalie Mrachacz-Kersting	

Poster Session	P3 - Poster Session		Day	Time
			Th15	16-17:30 18-19:30
Paper ID	Title	Authors		
12	EEG-Eye blink detection system for Brain Computer Interface	Sandy Rihana, Pascal Damien and Tony Moujaess		
20	Neurorehabilitation in chronic paraplegic patients with the HAL® Exoskeleton – preliminary electrophysiological and fMRI data of a pilot study	Matthias Sczesny-Kaiser, Oliver Honken, Silke Lissek, Melame Lenz, Lara Schlaffke, Volkmar Nicolas, Renate Meindl, Mirko Aach, Yoshiyuki Sankai, Thomas A. Schildhauer, Martin...		
30	Investigating the Neural Basis for Stroke Rehabilitation by Brain-Computer Interfaces	Timm Meyer, Jan Peters, Thorsten Zander, Doris Brötz, Surjo Soekadar, Bernhard Schölkopf and Moritz Grosse-Wentrup		
55	A Workstation for Development of Brain Machine Interfaces Using Spiking Neural Networks	Mehmet Kocaturk, Halil Ozcan Gulcur and Resit Canbeyli		
57	Asynchronous BCIs for the early detection and classification of voluntary movements: Applications in Stroke rehabilitation	Jaime Ibáñez, M. Dolores Del Castillo and J. Ignacio Serrano		
67	Individual Evaluation of Interhemispheric Neural Synchrony mediating Perceptual Bias in Apparent Motion Perception - A TMS-EEG study and applications in rehabilitation -	Yuji Mizuno, Masahiro Kawasaki and Keiichi Kitajo		
84	A P300-based BCI Aimed at Managing Electronic Devices for People with Severe Disabilities	Rebeca Corralejo, Daniel Álvarez and Roberto Hornero		
93	tDCS modulates motor imagery-related BCI features	Ricardo Chavarriaga, Andrea Biasucci, Alberto Molina, Robert Leeb Leeb, Vanesa Soto Leon, Michela Campolo, Antonio Oliviero and José Del R. Millan		
102	Sample-by-Sample Detection of Movement Intention from EEG using a Classifier with Optimized Decision Parameters	Wanjoo Park, Jae-Hwang Kang, Gyuhyun Kwon, Laehyun Kim and Sung-Phil Kim		
153	Using the Brain-rate as a preliminary indicator of general mental activation	Saso Koceski, Silvana Markovska-Simoska and Nada Pop-Jordanova		

Theme 4 - Biomechanics & movement analysis

Oral Session	OS4- Biomechanics in rehabilitation		Day	Time
			Fr16	16-17:30
Paper ID	Title	Authors		
10	Decoupling of the Centre of Mass (CoM) and centre of pressure (CoP) during gait initiation. Introduction of a new variable	Marc Nederhand, Eric Prinsen and Hans Rietman		
23	The importance of gait analysis in incomplete spinal cord injury patients in field of neurorehabilitation	Soraya Pérez Nombela, Antonio José Del Ama Espinosa, Ana de Los Reyes Guzmán, Ángel Manuel Gil Agudo, Francisco Molina Rueda and Diego Torricelli		
49	A biomechanical model for pathological tremor suppression	Juan Manuel Belda Lois, Silvia Mena Del Horno, Ignacio Bermejo, Ascensión Castillo and Jerónimo Sancho		
148	Muscle coherence during controlled voluntary movement in healthy subjects and patients with spinal cord injury: contraction and velocity dependence.	Elisabeth Bravo, Julio Gomez-Soriano, Manuel Aleixandre, Sergiu Albu, Cristina Simon, Diego Torricelli, Jose Luis Pons and Julian Taylor		
168	So-called 'Foot-Drop' Post-stroke: Not a Dorsiflexor Impairment	Virginia Little, Theresa McGuirk and Carolynn Patten		

Special Session	SS5- Movement analysis techniques in rehabilitation (I)		Day	Time
			We14	16-17:30
Paper ID	Title	Authors		
40	Validation of Inverse Dynamics Modelling and Corelation Analysis to Characterise Upper-Limb Tremor	David Western, Laurence Ketteringham, Simon Neild, Richard Hyde, Rosemary Jones and Angela Davies-Smith		
114	Subject-specific Center of Mass Estimation for In-home Rehabilitation - Kinect-Wii board vs. Vicon-Force plate	Alejandro Gonzalez, Mitsuhiro Hayashibe and Philippe Fraise		
117	3D Reaching in Visual Augmented Reality using Kinect™: the Perception of Virtual Target	Michela Goffredo, Maurizio Schmid, Silvia Conforto and Tommaso D'Alessio		
129	A wearable motion sensor for evaluating walking performance in Parkinson's disease with treatments	Toshiyo Tamura and Masaki Sekine		
190	Identification and decomposition of error in 3D motion capture using inertial and magnetic sensors	Stefan Lambrecht, Ilse Jonkers and José Luis Pons		

Special Session	SS5- Movement analysis techniques in rehabilitation (II)		Day	Time
			We14	18-19:30
Paper ID	Title	Authors		
60	Measurement of Lower Limb Spasticity Using an Inertial Sensor	Irma Sterpi, Alberto Caroli, Elisa Meazza, Giorgio Maggioni and Roberto Colombo		
108	Walking in water and on land after an incomplete spinal cord injury	Federica Tamburella, Giorgio Scivoletto, Elena Cosentino and Marco Molinari		
135	Comparative evaluation of gait event detection methods based on a single IMU: error sensitivity analysis to IMU positioning	Diana Trojaniello, Andrea Cereatti and Ugo Della Croce		
145	Estimate of lower trunk angles using gyroscope data in pathological gait	Eleni Grimpampi, Vincent Bonnet, Antonio Taviani and Claudia Mazzà		
178	Effect of Gait Speed on Dynamic Postural Stability, Harmony and Upper Body Attenuation	Pietro Scaglioni-Solano and Juan C. Moreno		

Poster Session	P4 - Poster Session		Day	Time
			Th15	16-17:30 18-19:30
Paper ID	Title	Authors		
11	Stiff Knee Gait in adults with spastic paresis. A systematic review of the effects of chemodenervation of the rectus femoris muscle.	Marc Nederhand, Martin Tenniglo, Jaap Buurke, Anand Nene and Hans Rietman		
26	Detection of Rehabilitation-Relevant Events During Endeffector Based Robot Assisted Rehabilitation of Upper Extremities	Michael Hennes, Kai Bollue, Henry Arenbeck, Dirk Abel and Catherine Disselhorst-Klug		
29	Instrumentation and biomechanical model for kinematic and kinetic analysis of upper limbs during gait with crutches.	Enrique Perez-Rizo, Angel Gil-Agudo, Marta Solis-Mozos, Juan Manuel Belda, Alvaro Page and Jose Luis Pons		
50	Functional Data Analysis for Gait Analysis after Stroke	Juan Manuel Belda Lois, María José Vivas Broseta, Silvia Mena Del Horno, Maria Luz Sánchez Sánchez, Miguel Matas and Enrique Visoca		
143	Specifying the gait phases of one leg using information of contralateral leg: Application to unilateral drop foot patients	Ali Firouzabadi, Hamid Reza Kobravi, Hossein Asghar Hosseini and Neda Kordjazi		
160	Muscular activation and kinetic effects of robotic guidance force on human walking	Filipe Barroso, José Pons and Juan Moreno		
161	Static and Dynamic Body Analysis in Physiotherapy and Rehabilitation	Miguel Reyes, Albert Clapés, Luis Felipe Mejía, José Ramírez, Juan Ramón Revilla and Sergio Escalera		
166	Joint Limit vs. Optimized Weighted Least Norm Methods in Predicting Upper Body Posture	Derek Lura, Stephanie Carey and Rajiv Dubey		
184	External support forces during assisted walking in a rehabilitation system	Eloy Urendes Jimenez, Ramon Ceres Ruiz, Magdo Bortole and Jose Luis Pons Rovira		
188	Modification of Lower Extremity Kinetic Symmetry During Sit-to-Stand Transfers Using a Wearable Robotic Leg Orthosis with Individuals Post-Stroke	Joshua Vose, Robert Horst Phd and Arlene McCarthy Pt Ms Dpt Ncs		
189	A biomechanical model for the validation of modular control in balance	Stefano Piazza, Misagh Mansouri, Jeffrey A. Reinbolt, Diego Torricelli and José L. Pons		
191	Analysis of the effect of two different feedbacks on the biomechanical patterns of stroke patients during robotic-assisted gait rehabilitation	Ivan Collantes, Guillermo Asín, Juan Camilo Moreno, Jose Luis Pons, Federica Tamburella, Marco Molinari		

Theme 5 - Novel rehabilitation paradigms

Oral Session	OS7- Neuromotor facilitation		Day	Time
			We14	9:30-11
Paper ID	Title	Authors		
54	Anodal Transcranial Direct Current Stimulation over the Lower Limb Motor Cortex Increases the Cortical Excitability with Extracranial Reference Electrodes	Tsuyoshi Tatemoto, Tomofumi Yamaguchi, Yokei Otaka, Kunitsugu Kondo and Satoshi Tanaka		
74	A novel brain-computer interface for chronic stroke patients	Natalie Mrachacz-Kersting, Imran Niazi, Ning Jiang, Aleksandra M. Pavlovic, Sasa Radovanović, Vladimir Kostic, Dejan Popovic, Kim Dremstrup and Dario Farina		
120	Mapping Arm Movements to Robotic Sonic Interaction Promote Group Dynamics and Increase Engagement at a Task	Hoang Le, Martin Loomes and Rui Loureiro		
134	Facilitating myoelectric-control with transcranial direct current stimulation	Anirban Dutta and Michael A. Nitsche		

Special Session	SS1- Games and Creativity for NeuroRehabilitation		Day	Time
			Fr16	16-17:30
Paper ID	Title	Authors		
8	Virtual reality system Toyra. A new tool to assess and treatment for upper limb motor impairment in patients with spinal cord injury	Iris Dimbwadyo Terror, Ana De Los Reyes, Alberto Bernal Sahún, Patricia López Monteagudo, Fernando Trincado Alonso, Begoña Polonio López and Ángel Manuel Gil Agudo		
22	First results of a comparison between gaming and conventional exercises to improve arm function after chronic stroke	Gerdienke Prange, Anke Kottink, Thijs Krabben, Johan Rietman and Jaap Buurke		
24	Use of virtual reality systems in cerebral palsy: updated clinical practice guideline.	Esther Monge, Francisco Molina Rueda and Alessandro De Mauro		
42	Evaluation of the use of a virtual reality video-game system as a supplement for rehabilitation of children with cerebral palsy	Luna Laura, Ortiz Rosa, Cano Roberto, Martinez Rosa, Alguacil Isabel and Sanchez Carlos		
132	Patient Tailored Virtual Rehabilitation	Shender María Avila-Sansores, Felipe Orihuela-Espina and Luis Enrique Sucar		

Special Session	SS7- Cognitive and Social Rehabilitation using Assistive Technologies		Day	Time
			Fr16	18-19:30
Paper ID	Title	Authors		
46	Enhancing Communication Through Biosignals in Severe Neuromuscular Conditions	Ana Londral, Neuza Nunes, Hugo Silva, Mamede Carvalho and Luis Azevedo		
71	E-CORE (Embodied COgnitive REhabilitation): A Cognitive Rehabilitation System Using Tangible Tabletop Interface	Jihee Jung, Laehyun Kim, Sehyung Park and Gyu Hyun Kwon		
81	Working memory, aided communication and cerebral palsy	Janice Murray		
86	From infancy to early childhood: The role of augmentative manipulation robotic tools in cognitive and social development for children with motor disabilities	Liliana Alvarez, Adriana Rios, Kim Adams, Pedro Encarnação and Al Cook		
88	Driving to Learn™ in a Powered Wheelchair: Cognitive outcomes for Children and Adults with Neurological Disorders	Lisbeth Nilsson		
133	Examining the effectiveness of a new software technology platform for cognitive and physical training in mild cognitive impairment and healthy older adults	Manuel Franco Martin, Fátima González Palau, Fernando Jiménez, Esther Parra, Raquel Losada, Teresa Cid, Pablo Gomez Canejo, Mara Bernate, Jose Miguel Toribio, Yuri Ruiz, Abdel Solis and Yolanda Bueno		

Special Session	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs		Day	Time
	Paper ID	Title	Authors	We14
98	Modular Platform for Haptic Guidance in Paediatric Rehabilitation for Upper Limb Neuromuscular Disabilities	Francisco J Ruiz-Sanchez and Jose Andres Turijan		
115	The Rehabilitation Gaming System at Home.	Jens Nirme, Belén Rubio, Armin Duff, Esther Duarte, Susana Rodriguez, Amparo Cuxart and Paul F. M. J. Verschure		
144	Toward the use of wearable inertial sensors to train gait in subjects with movement disorders	Alberto Ferrari, Laura Rocchi, Josien Van Den Noort and Jaap Harlaar		
192	Lifestyle evaluation using wearable technologies: opportunities for stroke patients	Fabien Massé, Anisoara Paraschiv-Ionescu, Bernard Ženko, Sašo Džeroski and Kamiar Aminian		
193	IGER: An Intelligent Game Engine for Rehabilitation	N.A. Borghese, M. Pirovano, R. Mainetti and P.L. Lanzi		
194	ArmAssist: an integrated solution for telerehabilitation of post-stroke arm impairment	Joel C. Perry, Haritz Zabaleta, Aitor Beloso, Cristina Rodriguez-De-Pablo, Francesca Cavallaro and Thierry Keller		

Special Session	SS10- Neurorehabilitation Technology: a joint technical, clinical, and basic effort		Day	Time
	Paper ID	Title	Authors	We14
198	Do we need allowing arm movements for rehabilitation of gait?	Digna de Kam, Jacques Duysens and Volker Dietz		
199	New Technology in rehabilitation: possibilities and limitations	P. Schenk, G. Colombo, and I. Maier		
202	Clinical application of a robotic device for locomotion	Markus Wirz and Rüdiger Rupp		
-	Robot-Aided Neurorehabilitation of Stroke Patients: Towards an On-Line Tracking of Motor Improvement	Alessandro Panarese		

Poster Session	P5 - Poster Session		Day	Time
	Paper ID	Title	Authors	Th15
14	Motor-prediction improvements after virtual rehabilitation in geriatrics: frail patients reveal different learning rates for movement and postural control.	Alexandre Kubicki, Francois Bonnetblanc and France Mourey		
31	The Effects of Nintendo's Wii® on posture Control on Patients Affected by DCA.	Ana Vicario Méndez		
69	TeleREHA: online/offline web platform for telerehabilitation of post-stroke arm impairment	Javier Arcas, Joel C. Perry, Cristina Rodríguez de Pablo and Thierry Keller		
72	Assessment of a telerehabilitation program by virtual reality-video games systems: postural control and multiple sclerosis	Rosa Ortiz Gutiérrez, Roberto Cano de La Cuerda, Fernando Galán Del Río, Isabel M ^a Alguacil Diego, Cesar Fernández de Las Peñas, Francisco Molina Rueda and Juan Carlos Miangolarra Page		
95	A Home-based Massed Practice System for Pediatric Neurorehabilitation	Yi-Ning Wu, Veton Saliu, Noah Donoghue, John Donoghue and Karen Kerman		
109	Rehabilitation of Phantom Limb Pain Using an Immersive Robotic Sensorimotor Training Paradigm	Peter Snow and Rui Loureiro		
113	Consistent arm rehabilitation training from clinical to home training: integrating the Universal Haptic drive in the TeleReha Software Platform	Jan F. Veneman, Je Hyung Jung, Joel C. Perry and Thierry Keller		
128	A telerehabilitation system for hand functional training	Azzurra Chiri, Mario Cortese, Paulo Rogério de Almeida Ribeiro, Marco Cempini, Nicola Vitiello, Surjo R. Soekadar and Maria Chiara Carrozza		
147	Use of virtual reality system Toyra to develop an objective set of parameters to evaluate the motor abilities of upper limbs in patients with spinal cord injury	Fernando Trincado, Alberto Bernal-Sahún, Patricia López-Monteagudo, Iris Dimbwadyo Terrer, Benito Peñasco-Martín and Ángel Gil-Agudo		
155	Robotic Platform to Evaluate the Assistance and Assessment on the Rehabilitation Loop	Xavier Giralt, Luis Ernesto Amigo, Alicia Casals and Josep Amat		
158	Virtual reality based tool for motor function assessment in stroke survivors	Belén Rubio Ballester, Jens Nirme, Esther Duarte, Ampar Cuxart, Susana Rodríguez, Armin Duff and P. F. M. J. Verschure		
176	Remote monitoring of post-stroke patients suffering from Apraxia and Action Disorganisation Syndrome	Laura Pastor-Sanz, Matteo Pastorino, Maria Teresa Arredondo, Melanie Wulff and Alan M. Wing		
180	E-Textile Platform For Movement Disorder Treatment	Laura Caldani, Carlo Mancuso and Rita Paradiso		
182	Wearable Electrogoniometer for Knee Joint Parameters Capture	Carlo Mancuso, Gianluca De Toma and Rita Paradiso		

Pre-post Conference WORKSHOPS

Pre-conf	WS1- Emerging therapies in Spinal Cord Injury + VISIT	Day	Time
		Tu13	Full-day
Paper ID	Title	Authors	
WS-4	Contribution of Biomechanics to neurorehabilitation in SCI patients	Angel Gil-Agudo	
WS-16	Forelimb force deficits and whole body compensations after rat cervical spinal hemisection.	Elisa López-Dolado and Jorge Collazos-Castro	
WS-23	Promising tools in neurorehabilitation: non-invasive neuromodulation of the central nervous system	Antonio Oliviero	
WS-26	The good, the bad and the ugly of spinal cord injury spasticity: towards a better diagnosis and targeted treatment strategy	Julian Taylor, Elisabeth Bravo, Gerardo Ávila-Martín, Iriana Galán-Arriero, Cristina Simón-Martinez, Sergiu Albu and Julio Gómez-Soriano	
WS-30	Robotic gait training in spinal cord injury	Ana Esclarín-Ruz and Mónica Alcobendas-Maestro	

Pre-conf	WS2- Emerging Therapies in Stroke + VISIT	Day	Time
		Tu13	Full-day
Paper ID	Title	Authors	
WS-36	Emerging Therapies in Stroke. Technologies and Neurorehabilitation: state of the art	Roberto Cano de La Cuerda and Isabel Alguacil	

Pre-conf	WS3- Rehabilitation robotics for pediatric applications + VISIT	Day	Time
		Tu13	Full-day
Paper ID	Title	Authors	
WS-34	Clinical application of robotics in children with cerebral palsy	Marta Pajaro Blázquez	
WS-37	Quantitative motion analysis in cerebral palsy	Sergio Lerma Lara, Ignacio Martínez Caballero and Ana Ramírez Barragán	
WS-38	Gait analysis workshop.	Sergio Lerma Lara, Ana Ramírez Barragán, María Teresa Vara Arias, Álvaro Pérez-Somarriba Moreno and Ester Márquez Sánchez	
WS-39	Cerebral Palsy: an overview of the disease and its management	Ignacio Martínez Caballero, Sergio Lerma Lara and Maria	
WS-40	Robotic vehicles for assisted mobility in cerebral palsy	Rafael Raya, Eduardo Rocon De Lima and Ramón Ceres	
WS-43	Sound and Rehabilitation Robotics for Pediatric Cerebral Palsy	Citlali Lopez-Ortiz	
WS-48	Challenges found in cerebral palsy orthopedic surgery	Ignacio Martínez Caballero	
WS-50	Unraveling mechanisms underlying the effectiveness of robot-assisted gait training in children with cerebral palsy	Paolo Bonato	

Pre-conf	WS5- Challenges for human centered assistive neuro-robotic devices: experience of the Mundus project	Day	Time
		Tu13	8:30-13
Paper ID	Title	Authors	
WS-5	Biomimetic neuroprostheses modulated on subject's residual motor capabilities	Simona Ferrante, Emilia Ambrosini, Thomas Schauer, Giancarlo Ferrigno and Alessandra Pedrocchi	
WS-8	"The MUNDUS project : concept , goals, challenges and achievements"	Alessandra Pedrocchi and Giancarlo Ferrigno	
WS-9	Modular Instrumented Arm Orthosis with Weight Support for Application with NMES	Werner Reichenfeller, Jakob Karner and Margit Gfoehler	
WS-13	RFID technology for objects recognition and their position estimation	Maria Bulgheroni, Enrico D'Amico and Luisa Sartori	
WS-17	Hybrid EEG-based BCI User Interface for Action Selection	Javier Pascual, Romy Lorenz, Benjamin Blankertz and Carmen Vidaurre	
WS-18	MUNDUS Environmental Sensor Framework	Andreas Jedlitschka, Marco Hack and Simone Nicolai	
WS-21	Clinical Impact of innovative neuroprosthesis on Activities of Daily Living (ADL). First set of Users evaluations	Franco Molteni, Eleonora Guanziroli, Mauro Rossini, Marina Gaffuri and Giovanna Palumbo	
WS-22	Design of feedback control strategies for an arm neuroprosthesis combined with an exoskeleton	Christian Klauer, Thomas Schauer, Jakob Karner, Werner Reichenfeller, Emilia Ambrosini, Simona Ferrante and Jörg Raisch	
WS-28	Wearable systems for grasping restoration	Andrea Crema, Federica Aprigliano and Silvestro Micera	

Pre-conf	WS6- Creating Intelligent Rehabilitation Technology: An Interdisciplinary Effort		Day	Time
			Tu13	8:30-13
Paper ID	Title	Authors		
WS-32	Creating Intelligent Rehabilitation Technology: An Interdisciplinary Effort	Rosalie Wang, Jennifer Boger and Babak Taati		

Pre-conf	WS7- Extracting the neural strategies from the EMG and implications for myocontrol in neurotechnologies		Day	Time
			Tu13	15-19:30
Paper ID	Title	Authors		
WS-7	High Density Surface EMG Technology	Roberto Merletti, Babak Afsharipour and Gianluca Piervirgili		
WS-11	New perspectives in real-time assessment of neural drive to skeletal muscles	Ales Holobar, Vojko Glaser and Damjan Zazula		
WS-24	Neuromusculoskeletal Modeling for Neurorehabilitation Technologies	Massimo Sartori and Dario Farina		
WS-33	Advanced myoelectric control of prostheses: requirements and challenges	Liliana Paredes and Bernhard Graitmann		
WS-42	Simultaneous and Proportional Myocontrol of Multiple Degrees of Freedom	Dario Farina, Ning Jiang, Hubertus Rehbaum, Silvia Muceli and Massimo Sartori		

Post-conf	WS9- Muscle synergies: from neurophysiological hypothesis to clinical tool		Day	Time
			Sa17	8:30-13
Paper ID	Title	Authors		
WS-45	Identifying Muscle Synergies from EMG Decomposition: Approaches, Evidence, and Potential Application to Neurorehabilitation	Andrea D'Avella, Benedetta Cesqui and Francesco Lacquaniti		
WS-29	Upper and lower limb muscle synergies: lessons learnt and new ideas for neurorehabilitation	Silvestro Micera, Vito Monaco, Peppino Tropea and Martina Coscia		
WS-44	Musculoskeletal Modeling of Human Locomotion Based on Low-Dimensional Impulsive Activation Signals: Perspectives for Neurotechnologies	Massimo Sartori, Leonardo Gizzi and Dario Farina		
WS-47	Plasticity and Different Solutions to Reorganize Muscle Patterns During Gait	Yuri Ivanenko, Germana Cappellini, Irina Solopova, Alexander Grishin, Michael MacLellan, Richard Poppele and Francesco Lacquaniti		
WS-35	The clinical future of muscle synergies. Goals and challenges.	Marco Molinari, Federica Tamburella and Giorgio Scivoletto		

Post-conf	WS10- Brain-Computer Interfaces for Rehabilitation		Day	Time
			Sa17	8:30-13
Paper ID	Title	Authors		
WS-3	BCI-controlled grasp neuroprostheses in high spinal cord injury	Ruediger Rupp and Gernot R. Mueller-Putz		
WS-6	Detecting Consciousness with a Brain-computer Interface	Quentin Noirhomme, Damien Lesenfants, Rémy Lehembre, Zulay Lugo, Camille Chatelle, Audrey Vanhauzenhuysse and Steven Laureys		
WS-14	Towards restoration and rehabilitation of motor functions with the help of brain-computer interfaces	Gernot R. Müller-Putz, Teodoro Solis Escalante, Johanna Wagner, Josef Faller, Vera Kaiser, Patrick Ofner and Reinhold Scherer		
WS-41	Bringing BCI controlled devices to end-users: a user centred approach and evaluation	Andrea Kübler, Elisa Holz and Tobias Kaufmann		
WS-46	Hybrid brain-computer interaction for functional motor recovery after stroke	Donatella Mattia, Floriana Pichiorri, Pietro Aricò, Fabio Aloise and Febo Cincotti		

Post-conf	WS11- Clinical Neurorehabilitation based on Neuromodulation Interventions		Day	Time
			Sa17	8:30-13
Paper ID	Title	Authors		
WS-19	Upper-Alpha Neurofeedback Training for Cognitive Enhancement: A Single Session Study	Carlos Escolano, Barbara Olivan, Yolanda Lopez, Javier Garcia Campayo and Javier Minguez		
WS-20	Using Upper Alpha Neurofeedback Training to Improve SMR Desynchronization	Eduardo López, Carlos Escolano and Javier Minguez		

Post-conf	WS12- Enhancing communication and computer access via assistive technology in Complex Communications Needs		Day	Time
			Sa17	8:30-13
Paper ID	Title	Authors		
WS-49	An inertial human-computer interface for cerebral palsy: The ENLAZA device	Rafael Raya, Eduardo Rocon de Lima and Ramón Ceres Ruiz		

Pre-conf	WS13- Engineering solutions for vestibular disorder symptoms: the CLONS project	Day	Time
		Tu13	15-19:30
Paper ID	Title	Authors	
WS-10	Vestibular implants in humans : solved problems and remaining challenges.	Jean-Philippe Guyot, Angelica Perez-Fornos and Nils Guinand	
WS-12	Novel assessment devices to quantify vestibular function and their relationship to clinical scales	Lorenzo Bassi Luciani, Vito Monaco, Vincenzo Genovese, Dario Martelli and Silvestro Micera	
WS-15	Sandwich electrode technology for precise vestibular electrodes with high reliability	Wigand Poppendieck, Marc-Oliver Krob, Christine Welsch, Dan Merfeld, Silvestro Micera and Klaus-Peter Hoffmann	
WS-25	An Implantable Closed-loop Vestibular Prosthesis	Dai Jiang, Andreas Demosthenous, Dominik Cirmirakis, Timothy Perkins, Anne Vanhoesteneberghe and Nick Donaldson	
WS-27	Investigating Vestibular Evoked Potentials as Feedback Signal in a Vestibular Neuroprosthesis: Relation to Eye Movement Velocity	Thuy Anh Khoa Nguyen, Wangsong Gong, Jack Digiovanna, Wigand Poppendieck and Silvestro Micera	

ROUND TABLES

Round Table 1	RT1- Technological Innovations in Neurorehabilitation in stroke: policies and strategies	Day	Time
		Fr16	18-19:30
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		Freygardur Thorsteinsson	
		Marco Molinari	
Creating Intelligent Rehabilitation Technology: An Interdisciplinary Effort (Paper #7)		Rosalie Wang, Jennifer Boger and Babak Taati	

Round Table 3	RT3- ICORR	Day	Time
		Th15	11:30-13
Topics		Panelists	
Description will be available soon at www.icnr2012.org			

Round Table 4	RT4- Official session of The European Society of Physical & Rehabilitation Medicine (ESPRM)	Day	Time
		Fr16	11:30-13
Discussion Topics		Panelists	
Role of PRM-Specialist regarding patients suffering from neurological impairments		Pedro Cantista	
The International Classification of Functioning, Disability and Health (ICF-Model) as a tool for assessment and treatment of disabled people		Enrique Varela-Donoso	
The ICF-Core set in relation to patients with Central Nervous System disturbances		Sara Laxe-García	

Round Table 5	RT5- Training and careers in Biomedical Engineering	Day	Time
		Fr16	18-19:30
Discussion Topics		Panelists	
Medical and Clinical Engineering Committee (Paper #56)		Antonio J. Del Ama and Susana Borrromeo	
		Susana Borrromeo López	
		Luis Garcés Pérez	
		Nigel Lovell	
		Metin Akay	

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Abdulla	Shwan Chatto	SS4.2- Control strategies in rehabilitation robotics (II)	140	Th15	11:30-13
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Ávila-Sansores	Shender María	SS1- Games and Creativity for NeuroRehabilitation	132	Fr16	16-17:30
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Borghese	Nunzio Alberto	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs (I)	193	We14	16-17:30
Borromeo	Susana	SS8- Sensory Restoration (I)	78	Fr16	9:30-11
Bortole	Magdo	SS3- Wearable Rehabilitation Robotics	79	Fr16	16-17:30
Bravo	Elisabeth	OS4- Biomechanics in rehabilitation	148	Fr16	16-17:30
Brunetti	Fernando	Poster Session	125	Th15	16-19:30
Brunetti	Fernando	Poster Session	186	Th15	16-19:30
Canela	Marina	Poster Session	126	Th15	16-19:30
Casals	Alicia	SS4.1- Control strategies in rehabilitation robotics (I)	47	Th15	8:30-10
Chavarriaga	Ricardo	Poster Session	93	Th15	16-19:30
Cho	Kyu-Jin	SS3- Wearable Rehabilitation Robotics	85	Fr16	16-17:30
Cifuentes García	Carlos Andrés	Poster Session	169	Th15	16-19:30
Collantes	Iván	Poster Session	191	Th15	16-19:30
Colombo	Roberto	OS2- Foundations for Rehabilitation Robotics in Clinical practice	16	We14	9:30-11
Controzzi	Marco	OS3- Neuroprosthetics (II)	124	We14	18-19:30
Corralejo	Rebeca	Poster Session	84	Th15	16-19:30
Coscia	Martina	SS4.1- Control strategies in rehabilitation robotics (I)	181	Th15	8:30-10
D'Alonzo	Marco	SS8- Sensory Restoration (I)	139	Fr16	9:30-11
de Mauro	Alessandro	SS1- Games and Creativity for NeuroRehabilitation	24	Fr16	16-17:30
del Ama	Antonio	OS6- Neuromotor models	9	Th15	11:30-13
del Ama	Antonio	Round Table 1 Technological Innovations in Neurorehabilitation	56	Fr16	18-19:30
del Ama	Antonio	SS4.2- Control strategies in rehabilitation robotics (II)	119	Th15	11:30-13
D'Elia	Baldassare	OS5- Biofeedback in neurorehabilitation	116	We14	11:30-13
Dietz	Volker	SS10- Neurorehabilitation Technology: a joint technical, clinical, and basic effort	200	We14	11:30-13
Dimbwadyo-Terrer	Iris	SS1- Games and Creativity for NeuroRehabilitation	8	Fr16	16-17:30
Domroes	Frank	Poster Session	36	Th15	16-19:30
Dosen	Strahinja	OS9- Neuromodulation	174	Th15	8:30-10
Dosen	Strahinja	Poster Session	179	Th15	16-19:30
Dubey	Rajiv	Poster Session	166	Th15	16-19:30
Duff	Armin	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs (I)	115	We14	16-17:30
Dutta	Anirban	OS3- Neuroprosthetics (I)	101	We14	16-17:30
Dutta	Anirban	SS6- How to translate FES from the research to practice	103	We14	11:30-13
Dutta	Anirban	OS7- Neuromotor facilitation	134	We14	9:30-11
Duysens	Jacques	SS10- Neurorehabilitation Technology: a joint technical, clinical, and basic effort	198	We14	11:30-13
Encarnação	Pedro	SS7- Cognitive and Social Rehabilitation using Assistive Technologies	86	Fr16	18-19:30
Escalera	Sergio	Poster Session	161	Th15	16-19:30

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Esposito	Gennaro	S10- Assessment of motor status	127	Fr16	9:30-11
Ferrari	Alberto	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs (I)	144	We14	16-17:30
Ficuciello	Fanny	Poster Session	175	Th15	16-19:30
Firouzabadi	Ali	Poster Session	143	Th15	16-19:30
Firouzabadi	Ali	SS6- How to translate FES from the research to practice	165	We14	11:30-13
Fleerkotte	Bertine	SS4.2- Control strategies in rehabilitation robotics (II)	123	Th15	11:30-13
Gallego Abella	Juan Álvaro	OS3- Neuroprosthetics (II)	112	We14	18-19:30
Giralt	Xavier	Poster Session	155	Th15	16-19:30
Goffredo	Michela	SS5.1- Movement analysis techniques in rehabilitation (I)	117	We14	16-17:30
González Palau	Fátima	Poster Session	133	Th15	16-19:30
Grosse-Wentrup	Moritz	Poster Session	30	Th15	16-19:30
Grosu	Svetlana	Poster Session	201	Th15	16-19:30
Guiraud	David	OS6- Neuromotor models	111	Th15	11:30-13
Harreby	Kristian Rauhe	OS3- Neuroprosthetics (I)	13	We14	16-17:30
Harreby	Kristian Rauhe	Poster Session	18	Th15	16-19:30
Hayashi	Yoshikatsu	S10- Assessment of motor status	151	Fr16	9:30-11
Hayashibe	Mitsuhiro	SS5.1- Movement analysis techniques in rehabilitation (I)	114	We14	16-17:30
Hennes	Michael	Poster Session	26	Th15	16-19:30
Hernando Rosado	Alicia	Poster Session	15	Th15	16-19:30
Holobar	Ales	S10- Assessment of motor status	61	Fr16	9:30-11
Holobar	Ales	OS5- Biofeedback in neurorehabilitation	70	We14	11:30-13
Iáñez	Eduardo	Poster Session	38	Th15	16-19:30
Ibañez Pereda	Jaime	Poster Session	57	Th15	16-19:30
Jae-Hwan	Kang	Poster Session	102	Th15	16-19:30
Jaramillo	Paola	SS4.1- Control strategies in rehabilitation robotics (I)	65	Th15	8:30-10
Jensen	Winnie	OS6- Neuromotor models	59	Th15	11:30-13
Jensen	Winnie	OS3- Neuroprosthetics (I)	97	We14	16-17:30
Jung	Jihee	SS7- Cognitive and Social Rehabilitation using Assistive Technologies	71	Fr16	18-19:30
Kanitz	Gunter	OS9- Neuromodulation	152	Th15	8:30-10
Kawasaki	Masahiro	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	64	Fr16	11:30-13
Kocaturk	Mehmet	Poster Session	55	Th15	16-19:30
Koceski	Saso	Poster Session	153	Th15	16-19:30
Koutsou	Aikaterini	SS6- How to translate FES from the research to practice	106	We14	11:30-13
Kristensen	Signe	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	104	Fr16	11:30-13
Kubicki	Alexandre	Poster Session	14	Th15	16-19:30
Kunju	Nissan	SS6- How to translate FES from the research to practice	122	We14	11:30-13
Lambrecht	Stefan	SS5.1- Movement analysis techniques in rehabilitation (I)	190	We14	16-17:30
Little	Virginia	OS4- Biomechanics in rehabilitation	168	Fr16	16-17:30
Londral	Ana	SS7- Cognitive and Social Rehabilitation using Assistive Technologies	46	Fr16	18-19:30
Londral	Ana	Poster Session	141	Th15	16-19:30
Lopez-Ortiz	Citlali	OS5- Biofeedback in neurorehabilitation	87	We14	11:30-13
Lorenzo	Bassi Luciani	OS3- Neuroprosthetics (II)	154	We14	18-19:30
Loureiro	Rui	Poster Session	109	Th15	16-19:30
Loureiro	Rui	OS7- Neuromotor facilitation	120	We14	9:30-11
Macher	Katja	OS9- Neuromodulation	118	Th15	8:30-10
Maciejasz	Pawel	OS3- Neuroprosthetics (II)	164	We14	18-19:30
Mancuso	Carlo	Poster Session	180	Th15	16-19:30
Mancuso	Carlo	Poster Session	182	Th15	16-19:30
Marchal-Crespo	Laura	SS4.1- Control strategies in rehabilitation robotics (I)	33	Th15	8:30-10
Marchal-Crespo	Laura	OS2- Foundations for Rehabilitation Robotics in Clinical practice	35	We14	9:30-11
Massé	Fabien	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs (I)	192	We14	16-17:30
Mazzà	Claudia	SS5.2- Movement analysis techniques in rehabilitation (II)	145	We14	18-19:30
Mazzoleni	Stefano	SS4.1- Control strategies in rehabilitation robotics (I)	63	Th15	8:30-10
Meijs	Suzan	Poster Session	48	Th15	16-19:30

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Meuleman	Jos	SS4.2- Control strategies in rehabilitation robotics (II)	25	Th15	11:30-13
Miljkovic	Nadica	OS1- BCI for Neurorehabilitation	39	We14	9:30-11
Morales	Ricardo	Poster Session	177	Th15	16-19:30
Morasso	Pietro	OS2- Foundations for Rehabilitation Robotics in Clinical practice	52	We14	9:30-11
Morone	Giovanni	OS2- Foundations for Rehabilitation Robotics in Clinical practice	137	We14	9:30-11
Mrachacz-Kersting	Natalie	OS7- Neuromotor facilitation	74	We14	9:30-11
Murray	Janice	SS7- Cognitive and Social Rehabilitation using Assistive Technologies	81	Fr16	18-19:30
Nederhand	Marc	OS4- Biomechanics in rehabilitation	10	Fr16	16-17:30
Nederhand	Marc	Poster Session	11	Th15	16-19:30
Nilsson	Lisbeth	SS7- Cognitive and Social Rehabilitation using Assistive Technologies	88	Fr16	18-19:30
Ortiz Gutierrez	Rosa M ^a	SS1- Games and Creativity for NeuroRehabilitation	42	Fr16	16-17:30
Ortiz Gutierrez	Rosa M ^a	Poster Session	72	Th15	16-19:30
Pajaro Blazquez	Marta	OS2- Foundations for Rehabilitation Robotics in Clinical practice	130	We14	9:30-11
Pastor-Sanz	Laura	Poster Session	176	Th15	16-19:30
Patten	Carolynn	SS3- Wearable Rehabilitation Robotics	171	Fr16	16-17:30
Patten	Carolynn	SS3- Wearable Rehabilitation Robotics	185	Fr16	16-17:30
Pérez Nombela	Soraya	OS4- Biomechanics in rehabilitation	23	Fr16	16-17:30
Pérez Rizo	Enrique	Poster Session	29	Th15	16-19:30
Perry	Joel	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs (I)	194	We14	16-17:30
Piazza	Stefano	Poster Session	189	Th15	16-19:30
Pichiorri	Floriana	OS1- BCI for Neurorehabilitation	62	We14	9:30-11
Popovic	Dejan	SS6- How to translate FES from the research to practice	183	We14	11:30-13
Popovic Maneski	Lana	Poster Session	197	Th15	16-19:30
Prange	Gerdienke	SS1- Games and Creativity for NeuroRehabilitation	22	Fr16	16-17:30
Raya	Rafael	Poster Session	156	Th15	16-19:30
Rietman	Hans	OS2- Foundations for Rehabilitation Robotics in Clinical practice	21	We14	9:30-11
Rihana	Sandy	Poster Session	12	Th15	16-19:30
Rosahl	Steffen	SS8- Sensory Restoration (I)	195	Fr16	9:30-11
Rubio Ballester	Belen	Poster Session	158	Th15	16-19:30
Ruiz	Diana	OS6- Neuromotor models	89	Th15	11:30-13
Ruiz-Sanchez	Francisco Jose	Poster Session	83	Th15	16-19:30
Ruiz-Sanchez	Francisco Jose	SS9- Moving rehabilitation at home: how technology can answer to the clinical needs (I)	98	We14	16-17:30
Ruiz-Sanchez	Francisco Jose	Poster Session	167	Th15	16-19:30
San Martin Jorquera	Fernando	OS1- BCI for Neurorehabilitation	136	We14	9:30-11
Sartori	Massimo	Poster Session	107	Th15	16-19:30
Satoshi	Tanaka	OS7- Neuromotor facilitation	54	We14	9:30-11
Savic	Andrej	OS1- BCI for Neurorehabilitation	162	We14	9:30-11
Scaglioni-Solano	Pietro	SS5.2- Movement analysis techniques in rehabilitation (II)	178	We14	18-19:30
Schenk	Peter	SS10- Neurorehabilitation Technology: a joint technical, clinical, and basic effort	199	We14	11:30-13
Shibata Alnajjar	Fady	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	6	Fr16	11:30-13
Shimoda	Shingo	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	66	Fr16	11:30-13
Shuto	Nakamura	Poster Session	157	Th15	16-19:30
Shuto	Nakamura	Poster Session	159	Th15	16-19:30
Spaich	Erika G.	OS9- Neuromodulation	96	Th15	8:30-10
Sterpi	Irma	SS5.2- Movement analysis techniques in rehabilitation (II)	60	We14	18-19:30
Suarez Mejías	Cristina	Poster Session	110	Th15	16-19:30
Tamburella	Federica	SS5.2- Movement analysis techniques in rehabilitation (II)	108	We14	18-19:30
Tamura	Toshiyo	SS5.1- Movement analysis techniques in rehabilitation (I)	129	We14	16-17:30
Trincado	Fernando	Poster Session	147	Th15	16-19:30

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Trlep	Matic	S10- Assessment of motor status	4	Fr16	9:30-11
Trojaniello	Diana	SS5.2- Movement analysis techniques in rehabilitation (II)	135	We14	18-19:30
Urendes Jimenez	Eloy Jose	Poster Session	184	Th15	16-19:30
Vaquero Rodriguez	Ana	SS8- Sensory Restoration (I)	32	Fr16	9:30-11
Veneman	Jan F.	Poster Session	113	Th15	16-19:30
Vicario Mendez	Ana	Poster Session	31	Th15	16-19:30
Vitiello	Nicola	Poster Session	128	Th15	16-19:30
Vitiello	Nicola	OS5- Biofeedback in neurorehabilitation	146	We14	11:30-13
Vose	Joshua	SS3- Wearable Rehabilitation Robotics	91	Fr16	16-17:30
Vose	Joshua	Poster Session	188	Th15	16-19:30
Weiss	Patrick	OS5- Biofeedback in neurorehabilitation	53	We14	11:30-13
Western	David	SS5.1- Movement analysis techniques in rehabilitation (I)	40	We14	16-17:30
Wirz	Markus	SS10- Neurorehabilitation Technology: a joint technical, clinical, and basic effort	202	We14	11:30-13
Wojtara	Tytus	SS2- Systematic Rehabilitation based on brain rhythm, muscle synergies and tacit learning	5	Fr16	11:30-13
Wu	Yi-Ning	Poster Session	95	Th15	16-19:30
Yuji	Mizuno	Poster Session	67	Th15	16-19:30