

XII IBERDISCAP 2023 – PROGRAM

Registration	Minerva Hall	Sunday (November 19) 15:00 - 17:00
		Monday (November 20) 7:30 - 8:00

Opening Ceremony	Auditorium Jorge Caron	Monday (November 20) 8:00 - 8:20
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MoPI1	Auditorium Jorge Caron	Monday (November 20) 8:20 - 9:30
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Chair: Adriano A. G. Siqueira (EESC/USP)

Increasing Affordable Rehabilitation Robots in Low and Middle Income Countries: Challenges and Opportunities

Michelle Johnson (University of Pennsylvania, USA)

The World Health Organization in “Rehabilitation 2030, a call for action,” describes a mismatch between the global need for rehabilitation, the growing issues seen in the numbers of patients that need care, and the availability of resource. The shortage of health professionals, rehabilitation therapists, nurses and doctors, and persons capable of taking care of the growing numbers of people with disabilities is a major cause of this gap in healthcare. Evidence suggests that rehabilitation robots, which include therapeutic and assistive robots, can support neurorehabilitation of persons with brain injuries and help bridge this care gap. Currently the impact of rehabilitation robotics has not been inclusive and access to the potential benefits of these technologies is unequal. Unfortunately, robot technology-assisted rehabilitation solutions are expensive and as a result they are primarily available in high-income countries, specifically in large hospitals, hospital-affiliated outpatient clinics and in supervised settings. Solutions that are appropriate for low- and middle-income countries (LMICs) are rare and as a result their availability and impact in these countries is low. Given the potential of these solutions to bridge resource gaps, we must consider innovative ways to design and develop them more affordably, provide more equal access to them for rehab use, and, thereby, extend their global footprint.

Coffee-break	Spring Hall	Monday (November 20) 9:30 - 10:00
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MoA1	Auditorium Jorge Caron	Monday (November 20) 10:00 - 11:40
Lower Limb Exoskeletons		
Chair: José Maria Azorin Poveda (UMH)		
MoA1.1 - 55 10:00 – 10:20	<p>Precise Elbow Angle Measurement for Exoskeletons Applications: Comparison between Optical Fiber and IMU-based sensors</p> <p>Sophia Otálora (UFES), Marcelo E. V. Segatto (UFES), Maxwell E. Monteiro (IFES), Carlos Cifuentes (UWE Bristol), Camilo Arturo Rodriguez Diaz (UFES)</p>	
MoA1.2 - 31 10:20 – 10:40	<p>Development and Design of an Innovative Smart Exoskeleton-Crutch System</p> <p>Victor Ferman (UNICAMP), Felipe Augusto Oliveira Mota (UNICAMP), César Bastos da Silva (UNICAMP), Eric Rohmer (UNICAMP)</p>	
MoA1.3 - 40 10:40 – 11:00	<p>Optimizing Motor Imagery Training for Lower-Limb Exoskeleton Control Through BCI</p> <p>Laura Ferrero Montes (UMH), Paula Soriano-Segura (UMH), Julian Jacobo Navarro Aguilar (ITESM), Oscar Jones (UH-USA), Mario Ortiz (UMH), Eduardo Iáñez (UMH), Jose Maria Azorin Poveda (UMH), José Contreras-Vidal (UH-USA)</p>	
MoA1.4 - 41 11:00 – 11:20	<p>Protocol for Evaluating Error Related Potentials in a Lower-Limb Exoskeleton Commanded by a Brain-Machine Interface</p> <p>Paula Soriano-Segura (UMH), Laura Ferrero Montes (UMH), Mario Ortiz (UMH), Eduardo Iáñez (UMH), Jose Maria Azorin Poveda (UMH)</p>	
MoA1.5 - 61 11:20 – 11:40	<p>Uso Combinado do Lokomat e Imagética Motora com Neurofeedback para Modulação do Ritmo Sensório-Motor após a Lesão Medular Espinal: Um Relato de Caso</p> <p>Ericka R. S. Serafini (IIN-ELS), Denis Delisle-Rodriguez (IIN-ELS), Fabíola R. Campos (IIN-ELS), André Felipe de Azevedo Dantas (IIN-ELS) , Aleandra S. Castro (UFRN), Arthur Monjardim (UFRN), Marana A. Silveira (UFRN), Juliana C. Silva (UFRN), Caroline C. do Espírito Santo (IIN-ELS)</p>	

MoA2	Auditorium Luiz Gastão de Castro Lima	Monday (November 20) 10:00 - 11:40
Serious Games and Virtual Reality Applications		
Chair: Gabriela Castellano (UNICAMP)		
MoA2.1 - 95 10:00 – 10:20	<p>EEG Changes of Stroke Survivors after Transcranial Direct Current Stimulation Combined With Augmented Reality Rehabilitation</p> <p>Bruna Mezzari Carlos (UNICAMP), Lucas T. Menezes (UNICAMP), Beatriz Rosa (UNICAMP), Bruna F. Furumoto (UNICAMP), Saulo S. Feitosa (UNICAMP), Corina A. Fernandes (Ânima Educação), Silvia E. Ferreira-Melo (UNICAMP), Júlia D. Pereira (UNICAMP), Sara Almeida (UNICAMP), Cássio V. Ruas (UNICAMP), Alexandre Brandão (UNICAMP), Gabriela Castellano (UNICAMP)</p>	
MoA2.2 - 96 10:20 – 10:40	<p>Combined Effects of Transcranial Direct Current Stimulation and Virtual Reality Technologies for Improvements of Range of Motion, Muscle Activity and Functionality in Stroke Survivors</p> <p>Cassio V. Ruas (UNICAMP), Júlia D. Pereira (UNICAMP), Bruna Mezzari Carlos (UNICAMP), Beatriz Rosa (UNICAMP), Bruna F. Furumoto (UNICAMP), Saulo S. Feitosa (UNICAMP), Lucas T. Menezes (UNICAMP), Corina A. Fernandes (Ânima Educação), Silvia E. Ferreira-Melo (UNICAMP), Sara Almeida (UNICAMP), Alexandre Brandão (UNICAMP), Gabriela Castellano (UNICAMP)</p>	
MoA2.3 - 84 10:40 – 11:00	<p>Raining Food: Serious Game for Nutrition Education Therapies in Children with Disabilities</p> <p>Éberte V. S. Freitas (UFES), João A. C. Panceri (UFES), Sheila da Luz Schreider (UFES), Eliete M. Caldeira (UFES), Teodiano Freire Bastos Filho (UFES)</p>	
MoA2.4 - 67 11:00 – 11:20	<p>Realidad Virtual: Una Estrategia para Mejorar la Interacción Humano Maquina en Programas de Rehabilitación Física con Smart Walker</p> <p>Brayan Sneider Moreno Arevalo (UFES), Carla Zimerer (UFES), Fabiana Santos Vieira y Machado (UFES), Anselmo Frizera Neto (UFES)</p>	
MoA2.5 - 63 11:20 – 11:40	<p>Crosskids: The Serious Game Developed for Motor Deficit Therapies in Children Using the Social Robot Maria T21</p> <p>Rafael C. Panceri (UFES), João A. C. Panceri (UFES), Éberte V. S. Freitas (UFES), Sheila da Luz Schreider (UFES), Eliete M. O. Caldeira (UFES), Teodiano Freire Bastos Filho (UFES)</p>	

MoB1	Auditorium Jorge Caron	Monday (November 20) 14:00 - 15:40
Rehabilitation Techniques		
Chair: Silvana Teresa Mercante (Hospital Jose Nestor Lencinas)		
MoB1.1 - 09 14:00 – 14:20	<p>Protocolo de Medida de EEG, EMGs y Cinemática Hacia el Control de un Sistema de Rehabilitación de Miembro Inferior Post-ACV</p> <p>Cristian Felipe Blanco-Díaz (UFES), Cristian David Guerrero-Mendez (UFES), Denis Delisle-Rodriguez (IIN-ELS), Teodiano Freire Bastos Filho (UFES)</p>	
MoB1.2 - 14 14:20 – 14:40	<p>Uma Revisão Sobre os Efeitos Sinérgicos de Estimulação por Corrente Contínua em Combinação com Interface Cérebro Computador Baseada em Imaginação Motora na Reabilitação de Pacientes Pós-AVC</p> <p>Sheida Mehrpour (UFES), Teodiano Freire Bastos Filho (UFES)</p>	
MoB1.3 - 34 14:40 – 15:00	<p>Efectos de la Rehabilitación Robótica del Tobillo en la Capacidad Funcional de la Marcha en Pacientes con Secuela de Accidente Cerebro Vascular: Resultados de Estudio de Viabilidad y Propuesta de Ensayo Clínico Controlado</p> <p>Juan C. Moreno (Instituto Cajal, CSIC), Silvana Teresa Mercante (Hospital Jose Nestor Lencinas), Raúl O. Rojas (Hospital Jose Nestor Lencinas), Silvina Cacciavillani (Hospital Jose Nestor Lencinas), Edgardo Cersósimo (Hospital Jose Nestor Lencinas)</p>	
MoB1.4 - 35 15:00 – 15:20	<p>Satisfacción del Paciente y Del Personal de Salud con Respecto a la Tele Rehabilitación: Retos y Oportunidades, en el Hospital José Néstor Lencinas</p> <p>Silvana Teresa Mercante (Hospital Jose Nestor Lencinas)</p>	
MoB1.5 - 15 15:20 – 15:40	<p>Terapia Assistida por Robô para o Desenvolvimento de Habilidades de Desempenho e Otimização do Desempenho Ocupacional de Crianças com Transtorno do Espectro Austista</p> <p>Maria Caroline Ribeiro Maciel (UFES), João A. C. Panceri (UFES), Éberte V. S. Freitas (UFES), Eliete M. O. Caldeira (UFES), Teodiano Freire Bastos Filho (UFES)</p>	

MoB2	Auditorium Luiz Gastão de Castro Lima	Monday (November 20) 14:00 - 15:40
Sensor Applications		
Chair: Glauco Caurin (EESC/USP)		
MoB2.1 - 23 14:00 – 14:20	Instrumentation of a Mattress with Polymeric Optical Fiber Sensors for Pressure Ulcers Prevention Anny dos Santos Natali (UFES), Evandro O. T. Salles (UFES), Camilo A. R. Diaz (UFES)	
MoB2.2 - 68 14:20 – 14:40	Development of a Sensing Pressure Mat Applied to a Serious Game Developed for Plantar Imbalances Therapies in Children Using the Social Robot Maria T21 João A. C. Panceri (UFES), Éberte V. S. Freitas (UFES), Sheila da Luz Schreider (UFES), Eliete M. O. Caldeira (UFES), Teodiano Freire Bastos Filho (UFES)	
MoB2.3 - 93 14:40 – 15:00	Palmilha de Base Polimérica de Sensores Piezoelétricos para Análise de Marcha Melkzedekue de Moraes Alcântara Calabrese Moreira (EESC/USP), Gabriel Ginja (EESC/USP), Denis César Mosconi Pereira (EESC/USP), Felipe Schiavon Inocência de Sousa (EESC/USP), Tiago M. Nordi (EESC/USP), João Paulo Pereira Carmo (EESC/USP), Adriano A. G. Siqueira (EESC/USP)	
MoB2.4 - 10 15:00 – 15:20	Caracterización de una Matriz de Sensores de Presión Basados en Fibra Óptica Polimérica (FOP) Ubicados en una Silla de Ruedas para el Monitoramiento de la Postura Aura Ximena Gonzalez Cely (UFES), Camilo Arturo Rodriguez Diaz (UFES), Teodiano Freire Bastos (UFES)	
MoB2.5 - 32 15:20 – 15:40	Investigação Acerca de Idosos para Desenvolvimento de uma Solução de Casa Inteligente Assistiva Baseda em IORT Felipe Augusto Oliveira Mota (UNICAMP), César Bastos da Silva (UNICAMP), Victor Ferman (UNICAMP), Eric Rohmer (UNICAMP)	

Coffee-break	Spring Hall	Monday (November 20) 15:40 - 16:40
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MoP1	Spring Hall	Monday (November 20) 15:40 - 16:40
Poster Session I		
Chair: Claudia Raquel Ibarrola Chamorro (Universidad Internacional Tres Fronteras)		
MoP1.1 - 05 15:40 - 16:40	Teste de Usabilidade em Contexto para um Mapa Tátil Sonoro no Centro Cultural Louis Braille Victor Mendes de Freitas Silva (UNICAMP), João Vilhete Viegas D'Abreu (UNICAMP)	
MoP1.2 - 71 15:40 - 16:40	Validation of Robotic Exoskeleton-Assisted Gait Assessment Using Inertial Measurement Units Laura Blanco Coloma (Hospital Nacional Paraplejos), Angel Gil-Agudo (Hospital Nacional de Paraplejos), Isabel Sinovas-Alonso (Hospital Nacional Paraplejos), Jose Maria Azorin Poveda (Universidad Miguel Hernandez de Elche), Juan C. Moreno (Instituto Cajal, CSIC), Diana Herrera-Valenzuela (Hospital Nacional Paraplejos)	
MoP1.3 - 45 15:40 - 16:40	Desenvolvimento de uma Plataforma de Baixo Custo para Treinamento de Habilidade Motora Fina Utilizando Jogos Sérios Iamara Boecher Borges Correia (Faculdade Centro Leste), Reanto Rego (Faculdade Centro Leste), Ledycnarf Holanda (UFRN), Leticia Araújo Silva (Faculdade Centro Leste , UFES)	
MoP1.4 - 36 15:40 - 16:40	Evaluación del Funcionamiento de Unidades de Medida Inerciales (IMU) para ser Utilizadas en el Análisis del Movimiento Humano Nelson Dugarte (Universidad Tecnológica Nacional), Antonio Alvarez Abril (UTN), Negman Alvarado (Centro Médico Mendoza), Guillermo Martín Sosa (UTN), Edinson Dugarte (Universidad Tecnológica Nacional)	
MoP1.5 - 51 15:40 - 16:40	Modeling and Simulation of Omnidirectional Mobile Robots for Applications in Gait Learning Victor Barros Coch (FURG), Vinicius M. Oliveira (FURG), Leonardo S. Correa (FURG), Mateus Borges de Oliveira Pinto (FURG)	
MoP1.6 - 59 15:40 - 16:40	Construção de Mecanismos Mecânicos para o Centro Especializado em Reabilitação de Ilha Solteira Carolina B. Sanches (UNESP - Ilha Solteira), Vinicius de Araújo Salmazo (UNESP - Ilha Solteira), Marcio A. Bazani (UNESP - Ilha Solteira)	

<p>MoP1.7 - 39</p> <p>15:40 - 16:40</p>	<p>Desenvolvimento de um Aplicativo Desktop para Análise de Dados Provenientes de Duas ou Mais Plataformas de Força: Estudo de Caso Aplicado no Projeto Rodar Sem Limites</p> <p>Igor da Silveira Carvalho (INT), Vinícios Souza Guilherme (INT), Eduardo Carpinelli (INT), Saul Mizrahi (INT), Carla Patricia Guimarães (INT)</p>
<p>MoP1.8 - 66</p> <p>15:40 - 16:40</p>	<p>Desarrollo Tecnológico de un Brazaete Sensorizado (Ciegnest) para Apoyo a Personas Con Discapacidad Visual Implementando Software y Hardware Libre</p> <p>Nestor Ramon Fariña Molina (Universidad Internacional Tres Fronteras), Claudia Raquel Ibarrola Chamorro (Universidad Internacional Tres Fronteras)</p>

MoC1	Auditorium Jorge Caron	Monday (November 20) 16:40 - 18:00
BCI and FES Applications		
Chair: Fernando Brunetti (UC Nuestra Señora de la Asunción)		
<p>MoC1.1 - 08</p> <p>16:40 – 17:00</p>	<p>Avances y Retos Computacionales para Interfaz Cerebro-Computador Basado en Imaginación Motora</p> <p>Cristian David Guerrero-Mendez (UFES), Cristian Felipe Blanco-Díaz (UFES), Denis Delisle-Rodriguez (IIN-ELS), Teodiano Freire Bastos Filho (UFES)</p>	
<p>MoC1.2 - 85</p> <p>17:00 – 17:20</p>	<p>Detección de Patrones Corticales Relacionados al Movimiento para el Desarrollo de una Interfaz Cerebro-Computadora Basada en Electroencefalografía</p> <p>Maximiliano Bonnin (UC Nuestra Señora de la Asunción), Sergio Elizalde (UC Nuestra Señora de la Asunción), Fernando Brunetti (UC Nuestra Señora de la Asunción)</p>	
<p>MoC1.3 - 86</p> <p>17:20 – 17:40</p>	<p>Controlador FES para la Asistencia en la Transferencia de Sedestación a Bipedestación Usando una Neuroprótesis de Miembros Inferiores.</p> <p>Sergio Elizalde (UC Nuestra Señora de la Asunción), Maximiliano Bonnin (UC Nuestra Señora de la Asunción), Fernando Brunetti (UC Nuestra Señora de la Asunción)</p>	
<p>MoC1.4 - 98</p> <p>17:40 – 18:00</p>	<p>Study of Electromechanical Delay in Response to Electrical Stimulation-Induced Muscle Fatigue: Preliminary Results</p> <p>Maria Jose Burbano-Gusmán (EESC/USP), Yecid Moreno (EESC/USP), Felix Mauricio Escalante Ortega (UNESP), Thiago Boaventura (EESC/USP), Adriano A. G. Siqueira (EESC/USP)</p>	

MoC2	Auditorium Luiz Gastão de Castro Lima	Monday (November 20) 16:40 - 18:00
Lower Limb Exoskeletons and Collaborative Robots		
Chair: Andres Leonardo Jutinico (UDFJC)		
MoC2.1 - 12 16:40 – 17:00	Influence of a Walker with Dynamic Weight Support on a Lower Limb Exoskeleton: Development Process and Outcome Evaluation Gabriel Patti Sanches Coelho (EESC/USP), Jonathan Campo Jaimes (EESC/USP), Adriano A. G. Siqueira (EESC/USP)	
MoC2.2 - 106 17:00 – 17:20	Estabilidad Cuadrática Media de un Exoesqueleto de Miembro Inferior Andres Leonardo Jutinico (Universidad Distrital Francisco José de Caldas), David Sebastián Rodríguez (UFJC), Jonnathan Andres Sandino (UDFJC), Adriano Siqueira (EESC/USP), Felix Mauricio Escalante Ortega (UNESP)	
MoC2.3 - 107 17:20 – 17:40	Collaborative Robots as Assessment Tool for Associated use of Negative Pressure and Laser Therapy Treatment for Parkinson's Disease Glauco Caurin (EESC/USP), Henrique B. Garcia (EESC/USP), Daniel V. Magalhães (IFSC), Antônio de Aquino Junior (IFSC)	
MoC2.4 - 60 17:40 – 18:00	Development of a Low-Cost Computer Vision Device for Alignment of Lower Limb Prostheses Arthur B. Faustinelli (UNESP - Ilha Solteira), Pablo Mauricio Portilla Hernandez (UNESP - Ilha Solteira), Caique Peres (UNESP - Ilha Solteira), Ricardo Taoni Xavier (UNESP - Ilha Solteira), Marcelo A. A. Sanches (UNESP - Ilha Solteira), Aparecido A. de Carvalho (UNESP - Ilha Solteira)	

Cocktail Only non-alcoholic beverages	Spring Hall	Monday (November 20) 18:00 - 19:00
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TuPI1	Auditorium Jorge Caron	Tuesday (November 21) 8:00 - 9:00
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Chair: Glauco Caurin (EESC/USP)

Human Gait Rehabilitation Using Robotics and Neuromuscular Modeling

Panagiotis Artemiadis (University of Delaware, USA)

Gait impairment due to neurological disorders or injuries has become one of the most important problems of the 21st century. However, current rehabilitation practice is non-patient specific and usually has little beneficial effect on the impaired walker, mainly due to the lack of a comprehensive data-driven model of sensorimotor mechanisms of human gait. This talk will focus on a new approach to robotic interventions for gait therapy using a neuromuscular model in conjunction with a novel robotic system, called Variable Stiffness Treadmill (VST) developed in Dr. Artemiadis' lab. The VST can deliver a unique unilateral stiffness intervention paradigm to walkers, which is shown to have beneficial after-effects that last for more than 500 steps after the intervention has been removed. Moreover, the effect these perturbations have can be described by a complex neuromusculoskeletal model, allowing for tailoring, and tuning the robot-assisted interventions to each patient.

Coffee-break	Spring Hall	Tuesday (November 21) 9:00 - 10:00
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TuP1	Spring Hall	Tuesday (November 21) 9:00 - 10:00
Poster Session II		
Chair: Carlos Alberto Costa (Universidade de Caxias do Sul),		
TuP1.1 - 24 9:00 - 10:00	Uso do Exoesqueleto de Membro Superior na Reabilitação de Indivíduos com Disfunção Motora: Revisão Integrativa Fernanda Vaz de Souza (UFES), Jessica Paola Souza Lima (UFES), Teodiano Freire Bastos Filho (UFES)	
TuP1.2 - 103 9:00 - 10:00	Magnetorheological Brake Mass Optimization for Hybrid Upper Limb Orthosis Used in Robotic Therapy Arthur Torres Caetano (UFMG), Rina Mariane Alves Dutra (Universidade Federal de São João del Rei), Francielle Paz (UFMG), Guilherme de Paula Rúbio (UFMG), Ricardo Poley Martins Ferreira (UFMG), Claysson Vimieiro (UFMG)	
TuP1.3 - 64 9:00 - 10:00	Implementación Médico Tipo Exoesqueleto para Miembro Inferior, como Herramienta de Apoyo para el Paciente en Sesiones de Hidroterapia Juan Pablo Hernández Corvacho (Escuela Colombiana de Ingeniería Julio Garavito), Luis Rodriguez Cheu (Escuela Colombiana de Ingeniería Julio Garavito)	
TuP1.4 - 06 9:00 - 10:00	Uso de Kinect para Captura de Movimento Usada em Escalonamento Luca Borgonovi (EESC/USP), Denis César Mosconi Pereira (IFSP - EESC/USP), Adriano A. G. Siqueira (EESC/USP)	
TuP1.5 - 26 9:00 - 10:00	Desenvolvimento de Recursos de Adequação Postural para Pacientes de UTI Carlos Alberto Costa (Universidade de Caxias do Sul), Daniel Pagnocelli Susin (Universidade de Caxias do Sul)	
TuP1.6 - 27 9:00 - 10:00	Avaliação da Usabilidade e Confiabilidade de um Novo Teste para Coordenação Motora Yasmim Moniz (Universidade de Mogi das Cruzes), Alessandro Pereira da Silva (UMC), Mariana da Palma Valério (UMC), Silvia Critstina Martini (UMC), Terigi Scardovelli (UMC), Silvia R. M. S. Boschi (UMC)	

<p>TuP1.7 - 13 9:00 - 10:00</p>	<p>Desenvolvimento de um Simetrógrafo Semidigital Otimizado</p> <p>Bruno Toshio Gomes Gunji (UMC), Sílvia R. M. S. Boschi (UMC), Luan Moura (UMC), Mariana da Palma Valério (UMC), Yasmim Moniz (UMC), Higor Barreto Campos (UMC), Sílvia Martini (UMC), Terigi Scardovelli (UMC), Alessandro Pereira da Silva (UMC)</p>
<p>TuP1.8 -29 9:00 - 10:00</p>	<p>AUTISMALG: Protótipo de um App Baseado no Protocolo Alvina para Auxiliar no Ensino da Identificação e Contagem de Algarismos para Crianças com TEA</p> <p>Fábio Junior Alves (Instituto Federal do Sul de Minas Gerais), Emerson Assis de Carvalho (Instituto Federal do Sul de Minas Gerais), Guilherme Sousa Bastos (Universidade Federal de Itajubá)</p>

TuA1	Auditorium Jorge Caron	Tuesday (November 21) 10:00 - 11:40
Lower Limb Exoskeletons		
Chair: Márcio Araújo (Universidade Federal do Rio Grande do Norte)		
TuA1.1 - 04 10:00 – 10:20	Marco Operativo para una Rehabilitacion Robotica de la Marcha con Exoesqueletos Manuel Bayon-Calatayud (Hospital Universitario Central de Asturias), Angel Gil- Agudo (Hospital Nacional de Paraplejicos de Toledo)	
TuA1.2 - 77 10:20 – 10:40	Diseño y Validación Funcional de un Maniquí de Ensayos para Plataformas de Rehabilitación de la Marcha Verónica Palomino-Díaz (Consejo Superior de Investigaciones Científicas), Pablo Romero-Sorozabal (Consejo Superior de Investigaciones Científicas), Eduardo Rocon (Consejo Superior de Investigaciones Científicas)	
TuA1.3 - 01 10:40 – 11:00	A Simulation Approach for the Study of Interaction Between Human and Active Knee Orthosis Denis César Mosconi Pereira (IFSP - EESC/USP), Melkzedekue de Moraes Alcântara Calabrese Moreira (EESC/USP), Adriano A. G. Siqueira (EESC/USP)	
TuA1.4 - 02 11:00 – 11:20	An Electromyographic Analysis of the Human-Active Knee Orthosis Interaction Denis César Mosconi Pereira (IFSP - EESC/USP), José Yecid Moreno (EESC/USP), Adriano A. G. Siqueira (EESC/USP)	
TuA1.5 - 82 11:20 – 11:40	Desenvolvimento de uma Órtese Instrumentada para Assistência Mecânica Passiva ao Movimento da Articulação do Joelho Igor Bezerra de Almeida (UFRN), Matheus Corradi (UFRN), Julio Cesar Silva Aprigio (UFRN), José Carlos Gomes da Silva (IIN-ELS), Edgard Morya (IIN-ELS), Victor Andrade Pimentel (IFRN), Adelardo Adelino Dantas de Medeiros (UFRN), Márcio Araújo (UFRN), Pablo Javier Alsina (UFRN)	

TuA2	Auditorium Luiz Gastão de Castro Lima	Tuesday (November 21) 10:00 - 11:40
Serious Games and Virtual Reality Applications		
Chair: Anselmo Frizzera Neto (UFES)		
TuA2.1 - 38 10:00 – 10:20	<p>Intervenção Psicomotora por meio de Jogos Sérios em Crianças e Adolescentes com Síndrome de Down Utilizando Robô Terapêutico</p> <p>Sheila da Luz Schreider (UFES), Éberte Freitas (UFES), Joao A. Panceri (UFES), Eliete M. Caldeira (UFES), Teodiano Freire Bastos Filho (UFES)</p>	
TuA2.2 - 49 10:20 – 10:40	<p>A Virtual Reality Based Interface to Train Smart Walker's Users</p> <p>Matheus Penido Loureiro (UFES), Fabiana Santos Vieira Machado (UFES), Ricardo Mello (UFES), Anselmo Frizzera Neto (UFES)</p>	
TuA2.3 - 50 10:40 – 11:00	<p>UFES-VWALKER: A Preliminary Mixed Reality System for Gait Rehabilitation Using a Smart Walker</p> <p>Fabiana Santos Vieira Machado (UFES), Matheus Penido Loureiro (UFES), Ricardo Mello (UFES), Camilo Arturo Rodriguez Diaz (UFES), Anselmo Frizzera Neto (UFES)</p>	
TuA2.4 - 108 11:00 – 11:20	<p>Estudio Preliminar de Exergames para Rehabilitación de Mano - Antebrazo</p> <p>Andrés Cela Rosero (Escuela Politécnica Nacional), Alberto Jardón Huete (Universidad Carlos III de Madrid)</p>	
TuA2.5 - 97 11:20 – 11:40	<p>Virtual Reality Serious Game Design for Upper Limb Rehabilitation: Assessment of Motor Function and Physiology</p> <p>Juan D. Abril (Instituto Politecnico Nacional), Eduardo Castillo (Instituto Politecnico Nacional), Oscar I. Caldas (Universidad Militar Nueva Granada), Mauricio Felipe Mauledoux (Universidad Militar Nueva Granada), Oscar F. Avilés (Universidad Militar Nueva Granada)</p>	

TuB1	Auditorium Jorge Caron	Tuesday (November 21) 14:00 - 15:40
Sensor Applications		
Chair: Samuel Lourenço Nogueira (UFSCar)		
TuB1.1 - 56 14:00 – 14:20	Low-Cost Polymeric Optical Fiber Sensor for Physiological Measurement María Fernanda Gaitán-Padilla (UFES), Maria José Pontes (UFES), Maxwell E. Monteiro (IFES), Carlos Cifuentes (UWE Bristol), Camilo Arturo Rodriguez Diaz (UFES)	
TuB1.2 - 83 14:20 – 14:40	Sistema Vestível para Monitoramento da Atividade Física Jonathan Campo Jaimes (EESC/USP), Gabriel Wolschick de Oliveira (EESC/USP), Adriano A. G. Siqueira (EESC/USP)	
TuB1.3 - 28 14:40 - 15:00	Modelos Virtuais Aplicados em Testes de Normas para Cadeira de Rodas Giovanni Acordi Costa (Universidade de Caxias do Sul), Carlos Alberto Costa (Universidade de Caxias do Sul),	
TuB1.4 - 75 15:00 – 15:20	Sensor de Fibra Óptica Polimérica para Monitoramento de Velocidade de Onda de Pulso Weliton Marques Ribeiro dos Santos (UFES), Maria José Pontes (UFES), Paulo F. C. Antunes (Universidade de Aveiro), Cátia S. J. Leitão (Universidade de Aveiro), Camilo Arturo Rodriguez Diaz (UFES)	
TuB1.5 - 90 15:20 – 15:40	Classificação Computacional de Atividades Diárias com Membros Superiores em Rede Neural de Reconhecimento de Padrões Utilizando Sensores Inerciais Paulo Matheus Girardi (UFSCar), Edson Hernandes Francelino (EESC/USP), Simone Garcia de Oliveira (UFSCar), Marco Henrique Terra (EESC/USP), Thiago Luiz Russo (UFSCar), Samuel Lourenço Nogueira (UFSCar)	

TuB2	Auditorium Luiz Gastão de Castro Lima	Tuesday (November 21) 14:00 - 15:40
Special Session - MYOREHAB Consortium		
Chairs: Leonardo Elias (UNICAMP), Andrés Úbeda (University of Alicante)		
TuB2.1 - 20 14:00 – 14:20	Monitoring and Delivering Personalized Hand Neurorehabilitation Through Virtual Activities Controlled by the Neural Drive (MYOREHAB) Alessandro Del Vecchio (University of Erlangen-Nuremberg), Leonardo Elias (UNICAMP), Carina Marconi Germer (UFPE), Jose Carlos Rangel (Universidad Tecnológica de Panamá), Andrés Úbeda (University of Alicante)	
TuB2.2 - 25 14:20 – 14:40	Upper Limb Rehabilitation with a Collaborative Robotic Platform Carmen Ivonne Arreola Castillo (Universidad de Monterrey), Mariana Elizalde Cano (Universidad de Monterrey), Irma Nayeli Angulo Sherman (Universidad de Monterrey), José Luis Ramón Carretero (Universidad de Alicante), Gabriel García (Universidad de Alicante), Andrés Úbeda (University of Alicante), Carlos A. Jara (University of Alicante)	
TuB1.3 - 79 14:40 – 15:00	Serious Game for Center-Out Rehabilitation Exercises on the Upper Limb Nuria González Hernani (University of Alicante), Jose Carlos Rangel (Universidad Tecnológica de Panamá), Andrés Úbeda (University of Alicante), Gabriel J. García (Universidad de Alicante)	
TuB2.4 - 89 15:00 – 15:20	Brainn-Controlled Functional Electrical Stimulation for Lower Limb Motor Rehabilitation after Stroke – Pilot Study Thifany Ketuli Silva de Souza (Universidade Federal de Pernambuco), Anelise Russo Praciano (Reintegrar Saúde), Karla Campos (Reintegrar Saúde), Elivandja Santos Vila Nova (Reintegrar Saúde), Rebeca Rodrigues (Reintegrar Saúde), Renata Estela de M. R. Russo (Reintegrar Saúde), Karine Pugliesi de Paiva (Reintegrar Saúde), Carina Marconi Germer (Universidade Federal de Pernambuco)	
TuB2.5 - 100 15:20 – 15:40	Simultaneous and Proportional Control of a 3D-Printed Prosthetic Hand Through a Wearable Multiprocessor System for Recording and Processing High-Density Surface Myoelectric Signals Ricardo Gonçalves Molinari (UNICAMP), Luan M. Rizzetto (UNICAMP), Carlos Eduardo Mendes (UNICAMP), Éder Sócrates Najar Lopes (UNICAMP), André Luiz Jardim Munhoz (UNICAMP), Leonardo Elias (UNICAMP)	

Coffee-break	Spring Hall	Tuesday (November 21) 15:40 - 16:10
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TUPI2	Auditorium Jorge Caron	Tuesday (November 21) 16:10 - 17:10
Chair: Eduardo Rocon (CSIC - Consejo Superior de Investigaciones Científicas)		
Advances in Non-Invasive Motor Neuroprosthetics and Neuromodulation Systems		
Fernando Brunetti (Universidad Católica "Nuestra Señora de la Asunción", Paraguay)		
<p>In recent years, several robotic solutions have been proposed in the field of motor rehabilitation and compensation. Some of them are designed for laboratory settings, while others are developed for ambulatory scenarios, aimed at activities of daily living and unstructured environments. More recent approaches have combined different technologies and areas of knowledge to address the individual challenges or limitations of each. Neurorobotics is developed at the boundaries of neuroscience and traditional robotics, benefiting from technologies such as muscle electrostimulation or brain-machine interfaces to modulate motor behavior and thus develop more natural, effective, and efficient solutions. In this talk, we will present the latest advances in non-invasive motor neuroprosthetic technologies and how they integrate with brain-machine interfaces to configure neuromodulation systems for rehabilitation or compensation purposes.</p>		

Device Demonstration	Spring Hall	Tuesday (November 21) 17:10 - 18:00
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Banquet Alcoholic beverages not included	El Cardal Restaurant (https://www.elcardal.com.br/)	Tuesday (November 21) 20:00 - 23:00
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WePI1	Auditorium Jorge Caron	Wednesday (November 22) 8:00 - 9:00
Chair: Anselmo Frizera Neto (Universidade Federal do Espírito Santo)		
<p>Neuroengineering and Assistive Technologies</p> <p>Edgard Morya (Instituto Internacional de Neurociências Edmond e Lily Safra)</p>		
<p>Neuroengineering is rapidly evolving, and its applications in assistive technology and rehabilitation are having a significant impact on the lives of individuals with neurological impairments. Continued research and development in this area have the potential to revolutionize the way we approach neurological disorders and injuries. Assistive technologies and rehabilitation are closely linked, as technology plays an essential role in the rehabilitation process. Innovative assistive technologies such as brain-computer interfaces, exoskeleton, neuromodulation are being developed to facilitate neural control of movement and improve motor function in individuals with neurological injuries or disorders. These technologies are designed to aid in movement, communication, and daily living activities, and can significantly improve the quality of life for people with disabilities.</p>		

Coffee-break	Spring Hall	Wednesday (November 22) 9:00 - 10:00
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WeP1	Spring Hall	Wednesday (November 22) 9:00 - 10:00
Poster Session III		
Chair: Eddy Krueger (Universidade Estadual de Londrina)		
WeP1.1 - 33 9:00 - 10:00	Biomarcadores Neuromecánicos Para Cuantificar la Gravedad de la Enfermedad de Parkinson Utilizando Sensores Vestibales (NEUROMARK) Adriana Torres-Pardo (Instituto Cajal/CSIC - UPM), Víctor Navarro-López (Universidad Rey Juan Carlos), Diego Fernández-Vázquez (Universidad Rey Juan Carlos), Marina Algaba Vidoy (CSIC), Sara Ruiz-Diez (CSIC), Jorge Gómez-García (CSIC), Juan C. Moreno (CSIC), Francisco Grandas (Hospital General Universitario Gregorio Marañón), Maria Carratalá-Tejada (Universidad Rey Juan Carlos), Francisco Molina-Rueda (Universidad Rey Juan Carlos), Diego Torricelli (CSIC)	
WeP1.2 - 37 9:00 - 10:00	Projeto e Modelagem de Sistema de uma Prótese de Mão Utilizando Microcontroladores da Família STM32 com Controle de Força e Feedback da Força Christian da Rocha Iardino (UNICAMP), Ludmila Correa de Alkmin e Silva (UNICAMP)	
WeP1.3 - 47 9:00 - 10:00	Pocket Electrostimulation System Based on EMG for Biofeedback Applications Augusto Inafuco (UTFPR), Thiago Simões Dias (UTFPR), Daniel Prado Campos (UTFPR), José Jair Alves Mendes Junior (UTFPR)	
WeP1.4 - 72 9:00 - 10:00	Feasibility of an Open-Source Myoelectric-Triggered Robotic Orthosis for Hand Grip in Tetraplegia Eddy Krueger (UEL), Larissa Sartori (UEL), Joyce Karla Machado da Silva (UENP), Paulo Broniera Junior (Instituto SENAI), José Jair Alves Mendes Junior (UTFPR), Daniel Prado Campos (UTFPR)	
WeP1.5 - 76 9:00 - 10:00	Implementación de un Dispositivo Electrónico y Biomédico para la Detección de Presiones Plantares en Pacientes con Pie Diabético Luis Rodriguez Cheu (Escuela Colombiana de Ingeniería Julio Garavito), Simón Alejandro Rubiano Franco (Todopie)	
WeP1.6 - 92 9:00 - 10:00	Mecanismos de Acionamento para Protótipo de Exoesqueleto por Cópia de Movimento Contralateral Gisele Paiva (UFSCar), Katylin Rainara Cunha de Meira (UFSCar), Rafael Vidal Aroca (UFSCar), Marcos Tan Endo (UFSCar), Mariano Eduardo Moreno (UFSCar), Flavia Aparecida Santos Barbosa (UFSCar)	

<p>WeP1.7 - 102</p> <p>9:00 - 10:00</p>	<p>Atualização de Prótese Mioelétrica Utilizando Técnicas de Modelagem 3D e Manufatura Aditiva</p> <p>Luan Monteiro Rizzetto (UNICAMP), André Luiz Jardini Munhoz (UNICAMP), Ricardo Gonçalves Molinari (UNICAMP), Leonardo Elias (UNICAMP), Éder Sócrates Najjar Lopes (UNICAMP)</p>
<p>WeP1.8 - 69</p> <p>9:00 - 10:00</p>	<p>Controle de Dispositivos HID via WEB API</p> <p>Amos Rodrigues Martins Junior (Pontifícia Universidade Católica do Paraná), Percy Nohama (Pontifícia Universidade Católica do Paraná)</p>

WeA1	Auditorium Jorge Caron	Wednesday (November 22) 10:00 - 11:40
Advanced Technologies for Mobility		
Chair: Flávia de Souza Bastos (Universidade Federal de Juiz de Fora)		
<p>WeA1.1 - 54</p> <p>10:00 – 10:20</p>	<p>EKF–SLAM Baseado em Landmarks Naturais e Artificiais a ser Aplicado em uma Cadeira de Rodas Inteligente</p> <p>César Bastos da Silva (UNICAMP), Felipe Augusto Oliveira Mota (UNICAMP), Victor Ferman (UNICAMP), Eric Rohmer (UNICAMP)</p>	
<p>WeA1.2 - 19</p> <p>10:20 – 10:40</p>	<p>Tecnologias 3D no Auxílio de Motorização de Carros de Passeio para Crianças com Deficiência em Mobilidade</p> <p>Ewerson dos Santos Rodrigues (Universidade Federal de Juiz de Fora), Rodrigo de Oliveira Dias (Universidade Federal de Juiz de Fora), Flávia de Souza Bastos (Universidade Federal de Juiz de Fora)</p>	
<p>WeA1.3 - 21</p> <p>10:40 – 11:00</p>	<p>Controle de Velocidade Automático Aplicado em Carrinhos de Passeio Motorizados Para Crianças com Deficiência em Mobilidade</p> <p>Rodrigo Dias (Universidade Federal de Juiz de Fora), Exuperry Barros Costa (Universidade Federal de Juiz de Fora), Flávia de Souza Bastos (Universidade Federal de Juiz de Fora)</p>	
<p>WeA1.4 - 42</p> <p>11:00 – 11:20</p>	<p>Simulação Computacional de Equipamento de Cadeira de Rodas para Inclusão e Mobilidade Usando Elementos Finitos</p> <p>Joan O'Connor (INT), Cristiane Silva (INT), Wellington Fernandes (INT), Claudio Santos (INT), Marcos Henrique Garamvolgyi e Silva (INT), M. de J. Monteiro (INT), Carla Patricia Guimarães (INT)</p>	
<p>WeA1.5 - 52</p> <p>11:20 – 11:40</p>	<p>Propuesta de un Sistema Multimodal de Comando de una Silla de Ruedas Robótica Utilizando Tres Técnicas de Control: Joystick, Eye Tracker y EEG-SSVEP</p> <p>Hamilton Rivera-Flor (UFES), Cristian Guerrero-Mendez (UFES), Ricardo Mello (UFES), Denis Delisle-Rodriguez (IIN - ELS), Teodiano Freire Bastos Filho (UFES)</p>	

WeA2	Auditorium Luiz Gastão de Castro Lima	Wednesday (November 22) 10:00 - 11:40
Lower and Upper Limbs Rehabilitation		
Chair: Caroline do Espírito Santo (Instituto Internacional de Neurociências Edmond e Lily Safra)		
WeA2.1 - 78 10:00 – 10:20	Generador Tridimensional de Patrones para Robots de Rehabilitación de la Marcha Pablo Romero-Sorozabal (CSIC), Gabriel Delgado-Oleas (CSIC), Álvaro Gutiérrez (CSIC), Eduardo Rocon (CSIC)	
WeA2.2 - 43 10:20 – 10:40	Promoviendo los Mecanismos Neuroplásticos con una Nueva Terapia Robótica de Neuro-Rehabilitación de la Marcha: el Proyecto NIMBLE Noemi González Lois (Instituto Cajal/CSIC), Antonio J. del-Ama (Universidad Rey Juan Carlos), Susana Borrromeo López (Universidad Rey Juan Carlos), Josep Maria Font-Llagunes (Universitat Politècnica de Catalunya), Filippo Maceratesi (Universitat Politècnica de Catalunya), Cristina Gómez-Pérez (Universitat Politècnica de Catalunya), Ángel Gil-Agudo (Hospital Nacional de Paraplégicos), Diana Herrera-Valenzuela (Hospital Nacional de Paraplégicos), Jesus Tornero (Center for Clinical Neuroscience), Clara Beatriz Sanz-Morère (CSIC), Laura Lopes Teixeira (Hospital Los Madroños), Diego Torricelli (CSIC), Juan Moreno (CSIC)	
WeA2.3 - 46 10:40 – 11:00	Assistive Robotics: Development of a Robotic Arm For Rehabilitation in Patients with Hemiparesis Victor Barros Coch (FURG), Mateus Borges de Oliveira Pinto (FURG), Kelli Moraes (FURG), Gustavo Machado (FURG), Vinicius Menezes de Oliveira (FURG)	
WeA2.4 - 48 11:00 – 11:20	Adecuación de la Intensidad al Entrenamiento de Miembro Superior con el Robot Humanoide Robic: un Caso de Estudio en Edad Infantil Pediátrica. Miriam Salas Monedero (Hospital Nacional de Paraplégicos), Elisa López-Dolado (Hospital Nacional de Paraplégicos), Yolanda Pérez Borrego (Hospital Nacional de Paraplégicos), Ángel Gil-Agudo (Hospital Nacional de Paraplégicos), José Carlos Pulido Pascual (Inrobics Social Robotics), Víctor Cereijo Herranz (Inrobics Social Robotics), Fuensanta García (Inrobics Social Robotics), Ana de los Reyes Guzmán (Hospital Nacional de Paraplégicos)	
WeA2.5 - 104 11:20 – 11:40	Proposta de um Sistema para Reabilitação de Membros Superiores Combinando Imagética Motora, Jogo Sério com Imersão Virtual e Estimulação Elétrica Funcional André Felipe Correia de Oliveira (IIN -ELS), Alex Batista da Costa (IIN -ELS), Thayse Albuquerque (IIN -ELS), Fábio Ricardo de Oliveira Galvão (IIN -ELS), Caroline do Espírito Santo (IIN -ELS), André Felipe Oliveira de Azevedo Dantas (IIN -ELS), Denis Delisle-Rodriguez (IIN -ELS)	

WeRT1	Auditorium Jorge Caron	Wednesday (November 22) 14:00 - 15:30
Chair: Jose Maria Azorin (Universidad Miguel Hernandez de Elche)		
Jose Maria Azorin (Universidad Miguel Hernandez de Elche) Teodiano Bastos (Universidade Federal do Espírito Santo) Andres Ubeda (University of Alicante)		

Awarda and Closing Ceremony	Auditorium Jorge Caron	Wednesday (November 22) 15:30 - 16:00
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AITADIS Meeting	Auditorium Jorge Caron	Wednesday (November 22) 16:00 - 17:00
Chair: Jose Maria Azorin (Universidad Miguel Hernandez de Elche)		

Nomenclature

Mo - Monday

Tu - Tuesday

We - Wednesday

A - Morning (10:00 - 11:40)

B - Afternoon (14:00 - 15:40)

C - Afternoon (16:40 - 18:40)

P - Poster

PI - Plenary

RT - Round Table

Rooms Location

