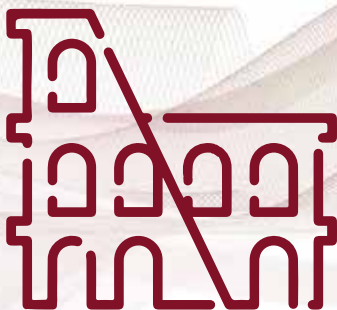




XXIII

Congresso Nazionale

SIAMOC



Roma
4-7 ottobre 2023
CENTRO CONGRESSI
SERAPHICUM

PRESIDENTE

Mariano Serrao

Sapienza Università di Roma

CO-PRESIDENTI

Elena Bergamini

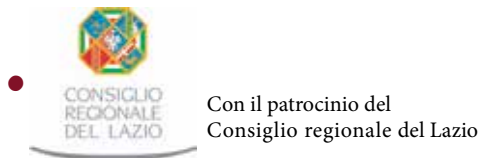
Università degli Studi di Roma
"Foro Italico"

Alberto Ranavolo

INAIL - Istituto Nazionale per
l'Assicurazione contro gli
Infortuni sul Lavoro



PATROCINI



- 
SIMFER
 SOCIETÀ ITALIANA DI MEDICINA
 FISICA E RIABILITATIVA
 The Italian Society of Physical and
 Rehabilitative Medicine
- 
**Società Italiana di Ergonomia
 e Fattori Umani**
- 
S.I.R.N. SOCIETÀ ITALIANA
 DI RIABILITAZIONE
 NEUROLOGICA
- 
**INTERNATIONAL
 SOCIETY OF
 POSTURE & GAIT
 RESEARCH**
- 
SISMES
 SOCIETÀ ITALIANA DELLE SCIENZE MOTORIE E SPORTIVE
- 
**GRUPPO
 GIOMI**
- 
HeAL Clinic
 FISIOTERAPIA - OSTEOPATIA
- 
ASSOCIAZIONE RMP
 di Giuseppe Menardi - SISTEMA DI FIDUCIALIFICAZIONE
 MODULARE PROGRESSIVO
 CONDOTTO KARAFI
- 
sensors
 an Open Access Journal by MDPI

SIAMOC 2023

Il congresso annuale della Società Italiana di Analisi del Movimento in Clinica (SIAMOC), giunto quest'anno alla sua ventitreesima edizione, approda nuovamente a Roma.

Il congresso SIAMOC, come ogni anno, è l'occasione per tutti i professionisti che operano nell'ambito dell'analisi del movimento di incontrarsi, presentare i risultati delle proprie ricerche e rimanere aggiornati sulle più recenti innovazioni riguardanti le procedure e le tecnologie per l'analisi del movimento nella pratica clinica.

Il congresso SIAMOC 2023 di Roma si propone l'obiettivo di fornire ulteriore impulso ad una già eccellente attività di ricerca italiana nel settore dell'analisi del movimento e di conferirle ulteriore respiro ed impatto internazionale.

Oltre ai qualificanti temi tradizionali che riguardano la ricerca di base e applicata in ambito clinico e sportivo, il congresso SIAMOC 2023 intende approfondire ulteriori tematiche di particolare interesse scientifico e di impatto sulla società. Tra questi temi anche quello dell'inserimento lavorativo di persone affette da disabilità anche grazie alla diffusione esponenziale in ambito clinico-occupazionale delle tecnologie robotiche collaborative e quello della protesica innovativa a supporto delle persone con amputazione. Verrà infine affrontato il tema dei nuovi algoritmi di intelligenza artificiale per l'ottimizzazione della classificazione in tempo reale dei pattern motori nei vari campi di applicazione.

Il comitato scientifico ed organizzativo del congresso stanno operando al meglio per organizzare un evento che possa facilitare ulteriormente l'applicazione clinica degli approcci strumentali per la l'analisi del movimento. Questo con l'obiettivo di consentire una migliore valutazione dei pazienti con disordini motori e una più focalizzata pianificazione dei trattamenti riabilitativi, farmacologici, chirurgici, protesici ed ergonomici.



COMITATO ORGANIZZATIVO

Irene Aprile - Fondazione Don Gnocchi, Roma

Elena Bergamini - Università Foro Italico, Roma

Fabiano Bini - Sapienza Università di Roma

Pietro Caliandro - Policlinico Universitario Agostino Gemelli, Roma

Filippo Camerota - Sapienza Università di Roma

Valentina Camomilla - IRCCS Università Foro Italico, Roma

Stefano Filippo Castiglia - Sapienza Università di Roma

Giorgia Chini - INAIL, Roma

Silvia Conforto - Università Roma Tre, Roma

Carmela Conte - Sapienza, Università di Roma

Gianluca Coppola - Sapienza Università di Roma

Andrea d'Avella - IRCCS Fondazione Santa Lucia, Roma - Università degli Studi di Messina

Marco Germanotta - Fondazione Don Gnocchi, Roma

Michela Goffredo - IRCCS San Raffaele, Roma

Chiara Iacovelli - Policlinico Universitario Agostino Gemelli, Roma

Marco Iosa - Sapienza Università di Roma

Yuri Ivanenko - IRCCS Fondazione Santa Lucia, Roma

Massimiliano - Sapienza Università di Roma

Franco Marinozzi - Sapienza Università di Roma

Giovanni Morone - IRCCS San Raffaele, Sulmona - Università dell'Aquila

Luca Padua - Policlinico Universitario Agostino Gemelli, Roma

Eduardo Palermo - PhD Ingegneria Meccanica e Aerospaziale, Sapienza, Roma

Marco Paoloni - Sapienza Università di Roma

Maurizio Petrarca - IRCCS Bambin Gesù

Pietro Picerno - Università degli Studi eCampus, Roma

Simone Ranaldi - Università Roma Tre, Roma

Alberto Ranavolo - INAIL, Roma

Emiliano Schena - Università Campus Biomedico, Roma

Maurizio Schmid - Università Roma Tre, Roma

Mariano Serrao - Sapienza Università di Roma

Silvia Sterzi - Università Campus Bio-Medico, Roma

Antonio Suppa - Sapienza Università di Roma

Francesca Sylos Labini - IRCCS Fondazione Santa Lucia, Roma

Giuseppe Vannozi - Università Foro Italico, Roma

Tiwana Varrecchia - INAIL, Roma

Loredana Zollo - Università Campus Bio-Medico, Roma

COMITATO SCIENTIFICO

Elena Bergamini - *Università Foro Italico, Roma*

Maria Cristina Bisi - *Alma Mater Studiorum Università di Bologna*

Pietro Caliandro - *Policlinico Universitario Agostino Gemelli, Roma*

Stefano Filippo Castiglia - *Sapienza Università di Roma*

Andrea Cereatti - *Politecnico di Torino*

Ugo Della Croce - *Università di Sassari*

Maria Vittoria Filippi - *ASL Romagna - Ospedale Morgani Pierantoni Forlì
UO Medicina Riabilitativa*

Annamaria Guiotto - *Università degli Studi di Padova*

Antonio Nardone - *Università degli Studi di Pavia, IRCCS Maugeri*

Pietro Picerno - *Università degli Studi eCampus, Roma*

Alberto Ranavolo - *INAIL, Roma*

Mariano Serrao - *Sapienza Università di Roma*

Rita Stagni - *Alma Mater Studiorum Università di Bologna*

Tiwana Varrecchia - *INAIL, Roma*



CORSO PRECONGRESSUALE

1

Mercoledì
04/10

09.00 Registrazione Corso Precongressuale 1

Sessione congiunta SIAMOC-SISMES

**Sensori indossabili per l'analisi del movimento
nello sport e nella riabilitazione:
una guida all'uso e all'interpretazione informata**

Giuseppe Vannozzi, Antonio Tessitore - *Università Foro Italico,
Roma, Italia*

**10.30 Introduzione al corso:
cosa richiede il campo e cosa può offrire la tecnologia**
Antonio Tessitore, Giuseppe Vannozzi

**11.30 Metodologie e protocolli di analisi del movimento per
la valutazione della prestazione sportiva**
Pietro Picerno

**12.30 Valutazione del rischio d'infortunio e gestione
dell'atleta infortunato**
Marco Bravi

**13.30 Sintesi finale: potenzialità e le sfide sull'uso dei sensori
indossabili nello sport**
Antonio Tessitore, Giuseppe Vannozzi

15.00 Conclusione

CORSO PRECONGRESSUALE 2

Mercoledì
04/10

09.00 Registrazione Corso Precongressuale 2

**10.30 Elettromiografia di superficie:
dal singolo muscolo alle mappe spinali**

Francesca Sylos Labini, Germana Cappellini - *Fondazione S. Lucia,
Roma, Italia*

Daniele Borzelli - *Università di Messina, Italia*

- **Che cosa è il segnale EMG**
- **Metodi di acquisizione** (*superficie, ago, schiere, ecc.*)
- **Preparazione del soggetto, posizionamento degli elettrodi ed identificazione del muscolo**
- **Acquisizione del segnale**
(*sincronizzazione con sistemi, pre-amplificazione, ecc.*)
- **Pre-processamento del segnale**
(*filtraggio ed identificazione degli artefatti*)
- **Analisi del segnale** (*media, normalizzazione, analisi in frequenza*)
- **Sinergie muscolari**
 - algoritmi e metodi di decomposizione
(*spaziale, temporale, spazio-temporale, space-by-time*)
 - reti muscolari di coerenza spettrale (*muscle networks*)
 - identificazione del numero di moduli
 - clusterizzazione e confronto tra diversi gruppi/soggetti
 - esempi pratici
- **Mappe spinali**
 - teoria
 - tipologie di myotomal charts (*Sharrard e Kendall*)
 - dagli EMGs alle mappe spinali
 - esempi pratici
- **Schiere EMG**
 - limitazioni dell'EMG bipolare
 - informazioni dalle schiere
 - decomposizione delle unità motorie
 - unità motorie e sinergie muscolari
 - esempi pratici
- **Parte pratica**
 - registrazione ed elaborazione di emg in diversi muscoli e in diverse condizioni

15.15 Conclusione

XXIII

Congresso Nazionale

SIAMOC

Mercoledì
04/10

15.15 Registrazione Congresso (Aperto dalle 12.00)

16.30 **Cerimonia di apertura**
Presidenti del Congresso
Presidente SIAMOC

17.30 LETTURA MAGISTRALE I
Moderatori: Andrea Cereatti, Maurizio Ferrarin

Sviluppo del cammino fisiologico e patologico
Francesco Lacquaniti - *Università di Roma Tor Vergata*
e *IRCCS Fondazione Santa Lucia, Roma, Italia*

18.15 **Intrattenimento e cocktail di benvenuto**
Francesco Piccinno *solo piano Jazz Concert*

Neurospritz
Marco Iosa - *Sapienza Università di Roma, Italia*

20.00 Conclusione della giornata



08.00 Registrazione Congresso

09.00 LETTURA MAGISTRALE 2

Moderatori: Yuri Ivanenko, Francesca Sylos Labini

Interazione tra postura e percezione cosciente

W. Geoffrey Wright - *Università di Temple, Filadelfia, USA*

Presentazioni Orali - SESSIONE 1

POSTURA, COORDINAZIONE E RISCHIO DI CADUTA

Moderatori: Ilaria Carpinella, Marco Godi

09.45 Postural control in pediatric neuromuscular and neurological diseases

Farinelli Veronica; Esposti Roberto; Dosi Claudia; Pedrinelli Ilaria;
Pagliano Emanuela; Cavallari Paolo

Università degli Studi di Milano, Milan, Italy; Istituto Neurologico "Carlo Besta", Milan, Italy

09.56 Reliability of an instrumented Timed Up and Go test in people with musculoskeletal conditions

Arcolin Ilaria; Giardini Marica; Guglielmetti Simone; Corna Stefano;
Godi Marco

Istituti Clinici Scientifici Maugeri Spa SB, IRCCS, Veruno (NO), Italy

10.07 Kinematic network changes following the assumption of levodopa in Parkinson's disease

Romano Antonella, Troisi Lopez Emahnel; Minino Roberta; Liparoti Marianna;
Sorrentino Giuseppe

University of Naples Parthenope; Institute of Applied Sciences and Intelligent Systems (CNR); Pegaso Telematic University

10.18 Articular network synchronization in Parkinson's disease during gait

Troisi Lopez Emahnel; Romano Antonella; Liparoti Marianna; Minino Roberta;
Sorrentino Giuseppe

*Institute of Applied Sciences and Intelligent Systems, CNR, Pozzuoli, Italy;
Department of Motor Sciences and Wellness, University of Naples
"Parthenope", Naples, Italy; Pegaso telematic University, Faculty of Human
Sciences, Italy*

- 10.29 Proposal of a tool to assess human gait coordination using parallel - coordinates plot**
Conte Carmela a, b; Castiglia Stefano Filippo a, b; Ranavolo Alberto c; Trabassi Dante a; Serrao Mariano a, d
a Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina; b Movement Analysis LAB, Policlinico Italia, Rome, Italy; c Department of Brain and Behavioral Sciences, University of Pavia, Pavia; d Department of Occupational and Environmental Medicine, Epidemiology and Hygiene, INAIL, Monte Porzio Catone, Italy;
- 10.40 Fall risk assessment in older adults: insights from sit-to-stand transfers in the real world**
Albites-Sanabria Jose; Palumbo Pierpaolo; Bandinelli Stefania; Palmerini Luca; Chiari Lorenzo
Department of Electrical, Electronic, and Information Engineering – DEI, University of Bologna, Italy; Institute of Advanced Studies, University of Bologna, Italy; Azienda Sanitaria Toscana Centro, Firenze, Piero Palagi Hospital, Firenze, Italy; Health Sciences and Technologies-Interdepartmental Center for Industrial Research, University of Bologna, Italy
- 10.51 Cognitive impairment is associated with gait variability and fall risk in Amyotrophic Lateral Sclerosis**
Spisto Myriam; De Marco Stefania; Hausdorff Jeffrey M. ; Aceto Gabriella; Salvatore Elena; Moretta Pasquale; Santangelo Gabriella; Trojano Luigi; Dubbioso Raffaele
Department of Psychology, University of Campania Luigi Vanvitelli, Naples, Italy; Center for the Study of Movement, Cognition and Mobility, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel; Department of Neurosciences, Reproductive Sciences and Odontostomatology, University Federico II of Naples, Italy; Department of Advanced Biomedical Sciences, Federico II University, Naples, Italy; Istituti Clinici Scientifici Maugeri IRCCS, Neurological Rehabilitation Unit of Telesse Terme Institute, Telesse Terme, Benevento, Italy
- 11.02 The influence of the neuropsychiatric symptoms on gait initiation in Parkinson's disease**
Lencioni Tiziana; Meloni Mario; Salvatore Anna; Pelosin Elisa; Ferrarin Maurizio; Saibene Francesca Lea
IRCCS Fondazione Don Carlo Gnocchi, Milan, Italy; Azienda Ospedaliero-Universitaria, Cagliari, Italy; University of Genoa, Genoa, Italy; IRCCS Policlinico San Martino, Genoa, Italy

11.15 Coffee Break

11.45 SESSIONE POSTER 1 (con "panic session")

Metodologia e sport

Moderatori: Fabiano Bini, Rita Stagni, Antonio Suppa

- 1 Single leg drop jump landing test classifier in young male team sport athletes: a preliminary study of a low-cost screening tool solution**
De Lazzari Beatrice; Pietripaoli Daniele; **Camomilla Valentina**
University of Rome "Foro Italico", Rome, Italy
- 2 Relationship between propulsion, symmetry, stability, and height in three different static figures of artistic swimming**
Fantozzi Silvia; Coloretto Vittorio; Chimieri Sarah; Russo Gabriele;
Cortesi Matteo
DEI, Università di Bologna; QUVI, Università di Bologna
- 3 Typicality of Neuromuscular Parameters and Energetic Commitment in Sprint: Acceleration, High Speed and Deceleration**
Grassadonia Gabriele; Freitas Tomás T.; Alcaraz Pedro E.
1Catholic University of Murcia, Murcia, Spain; 2Popolar University of Sport Sciences, Rome, Italy; 3Popular University of Milan, Milan, Italy; 4Miami International University, Miami, USA
- 4 Low back pain in powerlifting athletes: an electromyographic assessment of the injury risk**
Gregori Elisa; Gugliotta Andrea; Frizziero Antonio; Demeco Andrea;
Costantino Cosimo
Department of Medical and Surgical Sciences, University of Parma, Parma, Italy
- 5 Role of the flexion-relaxation phenomenon on the risk of low back pain in powerlifters: a proof-of-concept study**
Marotta Nicola; Spanò Riccardo; Tasselli Anna; Bartalotta Isabella;
Sgrò Maria; Zito Roberta; de Sire Alessandro; Ammendolia Antonio
a Department of Experimental and Clinical Medicine, University of Catanzaro "Magna Graecia", Catanzaro, Italy; a Department of Medical and Surgical Sciences, University of Catanzaro "Magna Graecia", Catanzaro, Italy
- 6 Impact of a proprioceptive training in terms of jump performance in volleyball athletes: a pilot study**
Spanò Riccardo; Marotta Nicola; Prestifilippo Emanuele; Giroladini Teobaldo;
Graziani Fedele; Ammendolia Antonio; de Sire Alessandro; Iona Teresa
Department of Medical and Surgical Sciences, University of Catanzaro "Magna Graecia", 88100 Catanzaro, Italy; S. Anna Institute, Via Siris, 11, 88900 Crotone, Italy; Anmi Siss, Viale San'Angelo, 87067 Rossano, Italy; Department of Experimental and Clinical Medicine, University of Catanzaro "Magna Graecia", 88100 Catanzaro, Italy

- 7 Fit for Medical Robotics (Fit4MedRob)**
Aprile Irene; Nardone Antonio
IRCCS Fondazione Don Carlo Gnocchi Onlus, Milan, Italy; Istituti Clinici Scientifici Maugeri IRCCS, Pavia, Italy
- 8 Classifying Gait Type and Predicting Parkinson's Disease through Machine Learning Models**
Balletti Nicoletta; Zinni Roberto; Laudato Gennaro; Oliveto Rocco
STAKE Lab – University of Molise, Pesche (IS), Italy; Defense Veterans Center, Ministry of Defense, Rome, Italy; Datasound srl, Spin-off of the University of Molise, Pesche (IS), Italy; WordPower srl, San Salvo (Ch) - Italy
- 9 Using DeepLabCut to evaluate infants' upper limb general movements from RGBDepth images: a strategy for selecting the training set**
Balta Diletta; Porco Ilaria Giuseppina; Kuo HsinHung; Wang Jing; Morozova Olga; Schladen Manon Maitland; Cereatti Andrea; Lum Peter Stanley; Della Croce Ugo
Politecnico di Torino, Torino, Italy; University of Sassari, Sassari, Italy; The Catholic University of America, Washington, United States of America; Children's National Hospital, Washington (D.C), United States of America; Georgetown University Medical Center, Washington (D.C), United States of America
- 10 TWIN-Acta-based RAGT for persons post-stroke: a pilot study on spatio-temporal gait parameters**
Bandini Virginia; Jonsdottir Johanna; Lencioni Tiziana; Maludrotto Stefano; Marzegan Alberto; Ceroni Indya; Di Bello Pietro; Scarpetta Silvia; Semprini Marianna; Ferrarin Maurizio
IRCCS Fondazione Don Carlo Gnocchi, Milano, Italia; Istituto Italiano di Tecnologia, Genova, Italia
- 11 Driving simulator for assessing the driving abilities of individuals with spinal cord injury**
Bellitto Amy; Biasotti Giulia; Freccero Aurora; Romani Paolo; Traverso Nicolò; Canessa Andrea; Casadio Maura; Massone Antonino; Ricci Serena; Pierella Camilla
DIBRIS, University of Genova, Genoa, Italy; Spinal Cord Unit, Santa Corona Hospital, ASL2, Savona, Italy; SimAV, University of Genova, Genoa, Italy; RAISE ecosystem, Genoa, Italy
- 

- 12 An IMU-based ambulatory protocol for the quantitative characterization of locomotor performance in pediatric patients with rare neurological diseases**
Bisi Maria Cristina; Fetta Anna; Soliani Luca; Sperandeo Federica; Utili Anna; Cordelli Duccio Maria; Stagni Rita
Department of Electrical, Electronic and Information Engineering "Guglielmo Marconi" (DEI), University of Bologna, Italy; Department of Medical and Surgical Sciences (DIMEC), University of Bologna, Italy; IRCCS Institute of Neurological Sciences of Bologna (INSB), UOC Neuropsychiatry of the Paediatric Age, Bologna, Italy
- 13 Real-time joint kinematics optimization through a constrained ISB-consistent upper limb model**
Caruso Marco; Digo Elisa; Gastaldi Laura; Pastorelli Stefano; Cereatti Andrea
Politecnico di Torino, Italy
- 14 Ability of a set of trunk acceleration-derived gait indexes to characterize gait imbalance in subjects with migraine**
Castiglia Stefano Filippo; Trabassi Dante; Seveso Greta; Seget Daniele; Di Lorenzo Cherubino; De Icco Roberto; Abagnale Chiara; Sebastianelli Gabriele; Tassorelli Cristina; Serrao Mariano; Coppola Gianluca
Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina, Italy; Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; Movement Analysis LAB, Policlinico Italia, Rome, Italy
- 15 Longitudinal falls risk prediction in subjects with Parkinson's disease using trunk acceleration-derived gait indexes**
Castiglia Stefano Filippo; Trabassi Dante; Conte Carmela; De Mattia Michela; Abagnale Chiara; Sebastianelli Gabriele; Ranavolo Alberto; Varrecchia Tiwana; Coppola Gianluca; Serrao Mariano
Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina, Italy; Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; Department of Occupational and Environmental Medicine, Epidemiology and Hygiene, INAIL, Monte Porzio Catone, Italy; Movement Analysis LAB, Policlinico Italia, Rome, Italy
- 16 Cortical processing of ankle joint proprioceptive afference during active and passive conditions: an EEG study**
Giangrande Alessandra; **Cerone Giacinto Luigi**; Piitulainen Harri; Botter Alberto
LISiN, Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino, Torino, Italia; University of Jyväskylä, Faculty of Sports and Health Sciences, Jyväskylä, Finland

- 17 A wireless, miniaturized EEG acquisition system optimized for dynamic recordings**
Giangrande Alessandra; Piitulainen Harri; Botter Alberto;
Cerone Giacinto Luigi
LISiN, Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino, Torino, Italia; University of Jyväskylä, Faculty of Sport and Health Sciences, Jyväskylä, Finland
- 18 Abnormalities of trunk acceleration-derived gait indexes in subjects with GLUT-1 deficiency**
Corrado Michele; De Icco Roberto; Grillo Valentina; De Giorgis Valentina; Vacchini Valeria; Varesio Costanza; Celario Massimiliano; Trabassi Dante; Castiglia Stefano Filippo; Serrao Mariano; Tassorelli Cristina
Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; Movement Analysis Research Unit, IRCCS Mondino Foundation, Pavia, Italy; Department of Child Neurology and Psychiatry, IRCCS Mondino Foundation, Pavia, Italy; Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina, Italy
- 19 Evaluation of lower limb muscle forces using the Hill-type model and wearable sensors**
Latella Claudia; Tatarelli Antonella; **Fiori Lorenzo**; Grieco Riccardo; Rapetti Lorenzo; Pucci Daniele
Istituto Italiano di Tecnologia, Genova, Italy
- 20 Sharing hologram in Mixed-Reality app for occupational therapy in the Metaverse challenge**
Franzò Michela; Pascucci Simona; Serrao Mariano; Marinozzi Franco; Fabiano Bini
Department of Mechanical and Aerospace Engineering, "Sapienza" University of Rome, Rome, Italy; National Centre for Clinical Excellence, Healthcare Quality and Safety, Italian National Institute of Health, Rome, Italy; Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Rome, Italy
- 21 Psychometric properties of the Balance Evaluation Systems Test in people with neurological diseases: a systematic review and meta-analysis**
Godi Marco; Arcolin Ilaria; Tagliabue Federica; Giardini Marica; Corna Stefano
Istituti Clinici Scientifici Maugeri Spa SB, IRCCS, Veruno (NO), Italy
- 22 Comparison of sensor fusion algorithms for applications in posturography using MIMU sensors**
Guiotto Annamaria; De Checchi Claudio; Pegolo Elena; Sawacha Zimi
Department of Information Engineering, University of Padua, Padua, Italy; Department of Medicine, University of Padua, Padua, Italy

- 23 Outcome assessment in musculoskeletal tumors and tumorlike lesions: a case-study investigation through a sensor-based mobility assessment**
Lo Zoppo Cecilia; Belluscio Valeria; Rossi Barbara; Rossi Andree; Parisi Cristiano; Pagnoni Chiara; Checcucci Elisa; Biagini Roberto; Bergamini Elena; Vannozi Giuseppe
University of Rome "Foro Italico", Rome, Italy; IRCCS Regina Elena National Cancer Institute, Italy
- 24 Innovative motor and cognitive dual-task for mild cognitive impairment early detection**
Mancioppi Gianmaria; Li Calzi Erica; Manera Valeria; Zeghari Radia; Dolciotti Cristina; Bongioanni Paolo; Fiorini Laura; Gros Auriane; Robert Philippe; Cavallo Filippo; Rovini Erika
The Department of Industrial Engineering, University of Florence, Florence, Italy; The CoBTeK, Université Côte d'Azur (UCA), Nice, France; NeuroCare onlus, Pisa, Italy
- 25 Assessment of rehabilitation treatment efficacy in multiple sclerosis patients using wrist mounted IMUs: preliminary results during daily living activities**
Mazzeletti Laura; Salis Francesca; Martinez Gianluca; Ventura Lucia; Manca Andrea; Deriu Franca; Cereatti Andrea
Polytechnic University of Turin; University of Sassari, Italy
- 26 Gait entropy using wearable sensors in patients with stroke during straight and curved gait: correlation with gait quality indices and clinical scales**
Montemurro Rebecca; Vasta Simona; Marangon Gabriele;
Orejel Bustos Amaranta Soledad; Vannozi Giuseppe; Bergamini Elena; Betti Viviana; Tramontano Marco
IRCCS Santa Lucia Foundation, Rome, Italy; University of Rome "Foro Italico", Rome, Italy
- 27 Crouch gait in bilateral cerebral palsy: a validation of markerless video examination of kneeling gait**
Negro Cristina; Balta Diletta; D'Angelo Giulia; Sicari Monica; Cereatti Andrea; Rovere Giancarlo
University of Torino, Torino, Italy; Politecnico di Torino, Torino, Italy; Physical and Rehabilitation Medicine Unit, ASLTO5 - Piedmont, Italy
- 28 Exploring the Validity of Smart Socks for Non-Invasive Gait Analysis**
Amitrano Federica; **Pagano Gaetano**; Coccia Armando; Biancardi Arcangelo; De Rosa Anna; D'Addio Giovanni
Bioengineering Unit, Scientific Clinical Institutes ICS Maugeri SPA SB, Pavia, Italy

- 29 Comparison of open-source markerless pose estimation methods in measuring gait kinematics: a preliminary 2D study**
Panconi Giulia; Grasso Stefano; Guarducci Sara; Mucchi Lorenzo;
Minciocchi Diego; Bravi Riccardo
Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy; Department of Physiology and Pharmacology, Sapienza University of Rome, Rome, Italy; Department of Information Engineering, University of Florence, Florence, Italy
- 30 A novel experimental paradigm to investigate neural and muscular activities during normal gait: proof of concept coupling EEG, sEMG and kinematics measures**
Pegolo Elena; Romanato Marco; Zampato Silvia; Mazzonetto Ilaria;
Rossi Michele; Bertoldo Alessandra; **Sawacha Zimi**
Department of Information Engineering, University of Padova, Padova, Italy
- 31 From motor control to a rehabilitative tool: a bioinspired orthosis**
Petrarca Maurizio; Bottoni Matteo; Favetta Martina; Vasco Gessica;
Castelli Enrico; Summa Susanna
Bambino Gesù" Children's Hospital, Neurorehabilitation and Robotics, Rome, Italy
- 32 Which is the best instrument to measure anticipatory postural adjustments of reaching movement?**
Pollet Joel; Buraschi Riccardo; Ranica Giorgia; Ragni Federica; Amici Cinzia
IRCCS Fondazione Don Carlo Gnocchi, Milan, Italy; Università degli Studi di Brescia, Brescia, Italy
- 33 Real time estimation of foot displacement using MIMUs attached to the foot**
Porco Ilaria Giuseppina; Lazich Aldo; Marco Caruso; Finti Alessia;
Cereatti Andrea; Della Croce Ugo; Solinas Sergio Mauro Gavino
Department of Biomedical Sciences, University of Sassari, Italy, Italian Joint Veteran Defense Center (Centro Veterani della Difesa), Rome, Italy, c DIAG, Sapienza University of Rome, Italy, d DET, Politecnico di Torino, Torino, Italy
- 34 Validation of a wearable multi-sensor system for characterizing gait under extreme terrain condition**
Ratto Geronimo Federico; Della Vecchia Pietro; Torres-Pardo Adriana;
Salis Francesca; Bertuletti Stefano; Algaba-Vidoy Marina; Millan Teresa;
Rodriguez-Cianca David; Torricelli Diego; Cereatti Andrea
Polytechnic Univeristy of Turin, Turin, Italy; Neural Rehabilitation Group, Spanish National Research Council (CSIC), Madrid, Spain; E.T.S. Telecommunication Engineers, Polytechnic Univeristy of Madrid, Madrid, Spain; Center for Clinical Neuroscience, Los Madroños Hospital, Madrid, Spain

- 35 A preliminary validation of a 3D markerless method for estimating the kinematics of a two-segment foot model using a single RGB-D camera**
Richetto Francesco; Balta Diletta; Riad Jacques; Della Croce Ugo; Cereatti Andrea
Politecnico di Torino, Turin, Italy; University of Gothenburg, Gothenburg, Sweden; Skaraborg Hospital Skövde, Skövde, Sweden; University of Sassari, Sassari, Italy
- 36 Machine learning approach to detect the 3D human posture from a 2D image**
Roggio Federico; Musumeci Giuseppe
Department of Biomedical and Biotechnological Sciences, Section of Anatomy, Histology and Movement Science, School of Medicine, University of Catania, Catania, Italy
- 37 Estimation of temporal parameters using foot-worn inertial sensors for different running speeds**
Rossanigo Rachele; Dipalma Elena; Martinez Gianluca; Agresta Cristine; Vieira Taian; Manca Andrea; Deriu Franca; Camomilla Valentina; Cereatti Andrea
Department of Biomedical Sciences, University of Sassari, Sassari, Italy; Department of Electronics and Telecommunications, Politecnico di Torino, Torino, Italy; Department of Rehabilitation Medicine, University of Washington, Seattle, USA; Department of Movement, Human and Health Sciences, University of Rome Foro Italico, Rome, Italy; Unit of Endocrinology, Nutritional and Metabolic Disorders, AOU Sassari, Sassari, Italy
- 38 A sensor-based approach for the characterization of mobility in patients affected by soft tissue tumors and tumor-like lesions**
Rossi Andree; Belluscio Valeria; Rossi Barbara; Lo Zoppo Cecilia; Zoccali Carmine; Zizzari Alessia; Checcucci Elisa; Biagini Roberto; Vannozzi Giuseppe; Bergamini Elena
University of Rome "Foro Italico", Rome, Italy; IRCCS Regina Elena National Cancer Institute, Rome, Italy
- 39 Processing video-recordings for the assessment of episodes of spontaneous limb movements in preterm infants**
Scordo Giulia; Ivanenko Yuri; Mondì Vito; Lacquaniti Francesco; Sylos-Labini Francesca
Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundation, Rome, Italy; Neonatology and Neonatal Intensive Care Unit, Casilino Hospital, Rome, Italy; Department of Systems Medicine and Center of Space Biomedicine, University of Rome Tor Vergata, Rome, Italy

- 40 Measure of Microsoft Hololens 2 accuracy in tracking position and orientation**
Solinas Sergio Mauro Gavino¹; Lazich Aldo^{2,3}; Porco Ilaria Giuseppina¹; Notarantonio Marco²; Balletti Nicoletta²; Finti Alessia¹; Della Croce Ugo¹
1 Department of Biomedical Sciences, University of Sassari, Italy; 2 Italian Joint Veteran Defense Center (Centro Veterani della Difesa), Rome, Italy; 3 DIAG, Sapienza University of Rome, Italy
- 41 Classification of fragile X syndrome phenotypes based on K-means cluster analysis of biomechanical variables**
Spolaor Fabiola; Guiotto Annamaria; Rigoni Giulio; Piatkowska Weronika; Di Giorgio Elisa; Liani Valentina; Polli Roberta; Casillas Martinez Garazi; Ane Alberdi Aramendi; Alessandra Murgia; Zimi Sawacha
a Department of Information Engineering, University of Padua, Padua, Italy; b Department of Women's and Children's Health - University of Padova, Italy; c Faculty of Engineering, Mondragon Unibertsitatea; d Department of Medicine - University of Padova, Italy
- 42 A Myoelectric-based pattern recognition architecture for shoulder movement intent detection: toward a human-machine interface for transhumeral amputees**
Tigrini Andrea; Al-Timemy Ali H.; Verdini Federica; Fioretti Sandro; Burattini Laura; Scattolini Mara; Mobarak Rami; Gambi Ennio; Mengarelli Alessandro
Department of Information Engineering, Università Politecnica delle Marche, Ancona, Italy; Al-Khwarizmi College of Engineering, University of Baghdad, Baghdad, Iraq
- 43 Multiscale entropy algorithms to investigate the degree of complexity and variability of trunk acceleration time series in Parkinson's disease patients**
Trabassi; Dante Castiglia Stefano Filippo; Conte Carmela; Ranavolo Alberto; Varrecchia Tiwana; Coppola Gianluca; Sebastianelli Gabriele; Abagnale Chiara; Barone Francesca; De Icco Roberto; Tassorelli Cristina; Serrao Mariano
Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina, Italy; Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; Movement Analysis LAB, Policlinico Italia, Rome, Italy; Department of Occupational and Environmental Medicine, Epidemiology and Hygiene, INAIL, Monte Porzio Catone, Italy
- 44 The Gait Variable Scores as clinically relevant tool for Myotonic Dystrophy types classification**
Tropea Peppino; Lofrumento Margherita; Seregni Agnese; Judica Elda; Corbo Massimo
Department of Neurorehabilitation Sciences, Casa di Cura Igea, Milan, Italy; Department of Mathematical, Physical and Computer Sciences, University of Parma, Parma, Italy

- 45 Assessment and comparison of zero-velocity detectors under variations in running speed**
Utzeri Beatrice; Rossanigo Rachele; Martinez Gianluca; Mercuri Edoardo; Manca Andrea; Camomilla Valentina; Chiaberge Marcello; Cereatti Andrea
Polytechnic University of Turin, Turin, Italy; University of Sassari, Sassari, Italy; Center PIC4SeR, Polytechnic University of Turin, Turin, Italy; University of Rome "Foro Italico", Rome, Italy

GIOCHI SIAMOC

Stefano Filippo Castiglia, Guido Pasquini, Peppino Tropea

13.00 Light Lunch

- 14.15 LETTURA MAGISTRALE 3**
Moderatori: Pietro Caliendo, Chiara Iacovelli

Webinar ISPGR

Esplorare la fisiopatologia del controllo motorio umano: dobbiamo testare circuiti semplici o esplorare interazioni di reti complesse?

John Rothwell - *Università di Londra, Regno Unito*

Presentazioni Orali - SESSIONE 2

NEUROFISIOLOGIA E CONTROLLO MOTORIO

Moderatori: Maurizio Ferrarin, Maria Vittoria Filippi

- 15.00 Optimized EEG-based Action Observation Therapy for stroke rehabilitation**
Cocco Elena Sofia; Goffredo Michela; Infarinato Francesco; Romano Paola; Cioeta Matteo; Franceschini Marco
IRCCS San Raffaele Roma, Italy

- 15.11 Multi-parametric monitoring in stroke unit: correlation between EEG based brain network variables and actigraphic parameters**
Iacovelli Chiara; Pani Danilo; Baldazzi Giulia; Rabuffetti Marco; Ferrarin Maurizio; Reale Giuseppe; Zauli Aurelia; Moci Marco; Salvatori Gianpaolo; Manganotti Paolo; Marinelli Lucio; Sacco Simona; Furlanis Giovanni; Ajčević Miloš; Crosetti Simona; Grazzini Matteo; Caliendo Pietro
Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy; University of Cagliari, Cagliari, Italy; IRCCS Fondazione Don Carlo Gnocchi, Milan Italy; Trieste University Hospital, University of Trieste, Trieste, Italy; IRCCS Ospedale Policlinico San Martino, Genova, Italy; University of L'Aquila, L'Aquila, Italy; University of Genoa, Genoa, Italy

- 15.22 Neuromodulatory contribution to muscle force is reduced after 10 days of unilateral lower limb suspension**
Martino Giovanni; Valli Giacomo; Sarto Fabio; Franchi Martino; Narici Marco; De Vito Giuseppe
Department of Biomedical Sciences, University of Padova, Padua, Italy
- 15.33 Co-activation in time-frequency domain among EMG signals from several muscles during walking**
Borzelli Daniele; Morano Martina; Fioretti Sandro; Di Nardo Francesco
Department of Biomedical, Dental, Morphological and Functional Imaging Sciences, University of Messina, Messina, Italy; Department of Information Engineering, Università Politecnica delle Marche, Ancona, Italy
- 15.44 Kinematic and muscle synergies analysis in patients with Parkinson's disease**
Castelli Gattinara Di Zubiena Francesco; Zampogna Alessandro; Cusolito Giovanni; Patera Martina; Paoloni Marco; Suppa Antonio; Palermo Eduardo
Sapienza University of Rome, Italy
- 15.55 Straight-path and U-turn gait biomarkers in PD patients before and after deep-brain stimulation**
Ghislieri Marco; Lanotte Michele; Rizzi Laura; Knaflitz Marco; Agostini Valentina
Department of Electronics and Telecommunications, Politecnico di Torino, Turin, Italy; PolitoBIOMed Lab, Politecnico di Torino, Turin, Italy; Department of Neuroscience "Rita Levi Montalcini", University of Turin, Turin, Italy; AOU Città della Salute e della Scienza di Torino, Turin, Italy
- 16.06 Age-related gait adaptation strategies during obstacle avoidance in virtual reality**
Palmisano Chiara; Hanafi Ibrahim; Isaias Ioannis Ugo
University Hospital of Wuerzburg, Wuerzburg, Germany; ASST G. Pini-CTO, Milan, Italy
- 16.17 A sensorimotor characterization of the Alzheimer's disease continuum with Linear Discriminant Analysis**
Russo Marta; de Nobile Alessia; Borghi Ilaria; De Pasquale Paolo; Berger Denise Jennifer; Maselli Antonella; Bibbo Daniele; Conforto Silvia; Lacquaniti Francesco; Koch Giacomo; d'Avella Andrea
Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundation, Rome, Italy; Department of Neurology, Tor Vergata Polyclinic, Rome, Italy; Department of Industrial, Electronic and Mechanical Engineering, Roma Tre University, Rome, Italy; Experimental Neuropsychophysiology Lab, IRCCS Santa Lucia Foundation, Rome, Italy; Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy; Department of System Medicine, Tor Vergata University, Rome, Italy; Institute of Cognitive Sciences and Technologies, National Research Council (CNR), Rome, Italy

16.30 Coffee break

LETTURA MAGISTRALE 4

Moderatori: Denise Berger, Andrea d'Avella

17.00 **Webinar ISPGR**

Reti neurali per la coordinazione motoria

Yifat Prut - *Università di Gerusalemme, Israele*

Presentazioni Orali - SESSIONE 3

Sessione congiunti SIAMOC-SINC

IL MACHINE LEARNING NELL'ANALISI DEL MOVIMENTO

Moderatori: Silvia Fantozzi, Letizia Leocani

17.45 **Neural networks and surface EMG to identify the transitions between the four main gait phases**

Di Nardo Francesco; Morbidoni Christian; Ventura Filippo; Fioretti Sandro
Department of Information Engineering, Università Politecnica delle Marche, Ancona, Italy; Department of Management and Business Administration, Università degli Studi G. d'Annunzio, Pescara, Italy

17:56 **A machine learning-based pipeline for stride speed estimation with a head-worn inertial sensor**

Tasca Paolo; Salis Francesca; Rosati Samanta; Balestra Gabriella; Cereatti Andrea

18:07 **Unsupervised machine learning strategy and shapley additive explanation to distinguish gait abnormalities through IMU-based gait analysis in movement disorders**

Trabassi Dante; Castiglia Stefano Filippo; Carlone Chiara; Conte Carmela; Fabiano Bini; Franco Marinozzi; Serrao Mariano
Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina, Italy; Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; Movement Analysis LAB, Policlinico Italia, Rome, Italy; Department of Mechanical and Aerospace Engineering, "Sapienza" University of Rome, Rome, Italy

18:18 **Feasibility of machine learning algorithms fed with frequency-domain features extracted from inertial signals to classify safe and unsafe postures during lifting tasks**

Prisco Giuseppe; Donisi Leandro; Mercaldo Francesco; Romano Maria; Esposito Fabrizio; Santone Antonella; Amato Francesco; Cesarelli Mario
University of Molise; University of Campania Luigi Vanvitelli; University of Napoli Federico II; University of Sannio, Italy

18:29 An artificial intelligence based 3-dimensional markerless motion capture system for indoor and outdoor sport applications

Rigoni Giulio; Monaco Niccolò; Casillas Martinez Garazi; Cibir Federica; Spolaor Fabiola; Guiotto Annamaria; Sawacha Zimi
*University of Padova, Dept of Information Engineering, Padova, Italy;
University of Padova, BBSof S.r.l, Padova, Italy; Mondragon Unibertsitatea,
Faculty of Engineering, Mondragòn, Spain; University of Padova, Dept of
Medicine, Padova, Italy*

18.45 Conclusione della giornata



08.00 Registrazione Congresso

09.00 LETTURA MAGISTRALE 5

Sessione congiunta SIAMOC-SIE-SOPHIA project

Moderatori: Giorgia Chini, Francesco Draicchio

Collaborazione uomo-robot per la riduzione del rischio biomeccanico nell'era industriale 4.0

Arash Ajoudani - *Istituto Italiano di Tecnologia, Genova, Italia*

Presentazioni Orali - SESSIONE 4

RISCHIO BIOMECCANICO, INTERAZIONE UOMO-ROBOT E ANALISI DEL TRONCO

Moderatori: Erminia Attianese, Loredana Zollo

09.45 Assessing Biomechanical Risks in Human-Robot Collaboration: Analysis of Muscle Activity with Different Intervention Conditions

Corvini Giovanni 1; Ajoudani Arash 2; Conforto Silvia 1; Ranaldi Simone 1; Schmid Maurizio 1; De Nobile Alessia 1; Bibbo Daniele 1

1 Department of Industrial, Electronic and Mechanical Engineering, Roma Tre University, Rome, Italy; 2 Human-Robot Interfaces and Interaction (HRI2), Istituto Italiano di Tecnologia, Genoa, Italy

09.56 Lower limb muscle co-activation during one (single) and two (team)-person liftings at different risk levels

Chini Giorgia; Varrecchia Tiwana; Fiori Lorenzo; Tatarelli Antonella; Silvetti Alessio; Serrao Mariano; Draicchio Francesco; Ranavolo Alberto

INAIL, Monte Porzio Catone, Italy; IIT, Genova, Italy; Sapienza University of Rome, Rome, Italy

10.07 Toward an Active Omnilateral Walking Support Robotic System

Fortuna Andrea; Cho Younggeol; Balatti Pietro; Gandarias Juan M.;

Leonori Mattia; Lorenzini Marta; Ajoudani Arash

Istituto Italiano di Tecnologia, Genova, Italy

10:18 Evaluation of a passive upper limb exoskeleton using high-density surface electromyography

Varrecchia Tiwana a, Chini Giorgia a, Di Fonzo Sarah b, Billardello Roberto b, Tamantini Christian b, Cordella Francesca b, Scotto di Luzio Francesco b, Zollo Loredana b, Fiori Lorenzo c, Tatarelli Antonella c, Silvetti Alessio a, Serrao Mariano d, Draicchio Francesco a, Ranavolo Alberto a

a INAIL, Rome, Italy, b Campus Biomedico, Rome, Italy, cIIT, Genova, Italy,

- 10:29** *dSapienza University of Rome, Italy*
Position-specific muscle coactivation in human-robot collaboration
Ranaldi Simone; Bibbo Daniele; Corvini Giovanni; Schmid Maurizio; De Nobile Alessia; Conforto Silvia
Università Roma Tre, Rome, Italy
- 10:40** **Trunk muscle coactivation changes in patient with multiple myeloma undergoing vertebral consolidation surgery: a study performed by using movement analysis technologies**
Zampa Benedetta; Montante Barbara; Ciancia Rosanna; Chini Giorgia; Varrecchia Tiwana; Michieli Mariagrazia; Ranavolo Alberto
IRCCS CRO National Cancer Institute, Aviano, Italy; INAIL, Monte Porzio Catone, Italy
- 10:51** **Quantifying muscular activity during Back Performance Scale tasks**
Billardello Roberto; Tamantini Christian; Scotto di Luzio Francesco; Cordella Francesca; Russo Fabrizio; Papalia Giuseppe; Vadalà Gianluca; Zollo Loredana
Research Unit of Advanced Robotics and Human-Centred Robotics, Università Campus Bio-Medico di Roma, Rome, Italy; Research Unit of Orthopaedic and Trauma Surgery, Università Campus Bio-Medico di Roma, Rome, Italy; Operative Research Unit of Orthopaedic Surgery, Fondazione Policlinico Universitario Campus BioMedico, Rome, Italy
- 11:02** **New kinematic parameters for sagittal plane analysis of the spine and whole-body during walking**
De Blasiis Paolo; Fullin Allegra; Perna Angelica; Lucariello Angela; De Luca Antonio
Section of Human Anatomy, Department of Mental and Physical Health and Preventive Medicine, University of Campania "Luigi Vanvitelli", Naples, Italy; Department of Medicine and Health Sciences "Vincenzo Tiberio", University of Molise, Via F. De Santis, Campobasso, Italy; Department of Sport Sciences and Wellness, University of Naples "Parthenope", Naples, Italy

11.15 Coffee Break



11.45 **SESSIONE POSTER 2 (con "panic session")**

Clinica

Moderatori: Marianna Capecci, Francesco Di Nardo, Tiziana Lencioni

1 Effects of fatigue on walking performance and dynamic balance in subjects with multiple sclerosis

Anastasi Denise; Bertoni Rita; Crippa Alessandro; Cardini Rebecca; Gervasoni Elisa; Cattaneo Davide

a IRCCS Fondazione Don Carlo Gnocchi, Milan; Department of Pathophysiology and Transplantation, University of study Milan, Italy

2 Locomotor patterns during sidestepping in children with cerebral palsy

Avaltroni Priscilla; Cappellini Germana; Sylos-Labini Francesca; Dewolf Arthur; Assenza Carla; Morelli Daniela; Lacquaniti Francesco; Ivanenko Yuri

Laboratory of neuromotor physiology, IRCCS Fondazione Santa Lucia, Rome, Italy; Department of systems medicine and center of space biomedicine, University of Rome Tor Vergata, Rome, Italy; Department of pediatric neurorehabilitation, IRCCS Fondazione Santa Lucia, Rome, Italy

3 Test-retest reliability of gait parameters of instrumented 6-minute walk test in Parkinson's disease

Bailo Gaia; Saibene Francesca Lea; Bandini Virginia; Arcuri Pietro; Salvatore Anna; Meloni Mario; Castagna Anna; Lencioni Tiziana; Ferrarin Maurizio; Carpinella Ilaria

IRCCS Fondazione Don Carlo Gnocchi, Milano, Italia; Unità Neurologica, Azienda Ospedaliero-Universitaria, Cagliari, Italy

4 Spine kinematic assessment during forward bending and sit-to-stand tests in low-back-pain patients

Bravi Marco; Santacaterina Fabio; Paloschi Davide; Saccomandi Paola; Massaroni Carlo; Schena Emiliano; Morrone Michelangelo; Bressi Federica; Sterzi Silvia; Miccinilli Sandra

a Fondazione Policlinico Universitario Campus Bio-Medico, Rome, Italy; b Università degli Studi di Roma "Foro Italico", Rome, Italy; c Politecnico di Milano, Milan, Italy; d Università Campus Bio-Medico di Roma, Rome, Italy

5 Kinematics during the BBT: a pilot study on subjects with Parkinson's disease and post-stroke

Cocco Elena Sofia; Goffredo Michela; **Thouant Carrie-Louise;**

Infarinato Francesco; Ottaviani Marco; Romano Paola; Franceschini Marco
IRCCS San Raffaele Roma, Rome, Italy

- 6 Prospective observational study on movement disorders and muscle changes in the patient with liver cirrhosis: analysis of electroneurographic data in a subgroup of patients, with and without cognitive impairment**
Elia Stefania; Pezzola Giorgia; Saletti Carlos Leon; Merli Manuela; Ridola Lorenzo; Stefano Filippo Castiglia; Dante Trabassi; Mariano Serrao
Department of Medical and Surgical Sciences and Biotechnologies, Sapienza University of Rome - Polo Pontino, Italy
- 7 Biomechanical evaluation with two-year follow-up in patient after iliac crest autograft in osteosarcoma of the cuboid: a gait analysis case report**
Gambirasio Chiara; Maria Serena Bartoli; Meloni Giorgio;
Flaviani Lorenza Maria
Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Milan, Italy; Centro di Ortopedia Oncologica - ASST Centro Traumatologico Ortopedico Gaetano Pini – CTO, Milan, Italy; Università degli Studi Niccolò Cusano, Ingegneria industriale, Curriculum Biomedico, Rome, Italy; Orthesys Srl, Milan, Italy
- 8 Review of Mixed Reality applications in medical and athletics fields**
Franzò Michela; Pascucci Simona; Serrao Mariano; Marinozzi Franco; Fabiano Bini
Department of Mechanical and Aerospace Engineering, “Sapienza” University of Rome, Rome, Italy; National Centre for Clinical Excellence, Healthcare Quality and Safety, Italian National Institute of Health, Rome, Italy; Department of Medical and Surgical Sciences and Biotechnologies, “Sapienza” University of Rome, Rome, Italy
- 9 Neuromuscular assessment of balance in chronic ankle instability**
Ghislieri Marco; Labanca Luciana; Mosca Massimiliano; Bragonzoni Laura; Knaflietz Marco; Benedetti Maria Grazia; Agostini Valentina
Department of Electronics and Telecommunications, Politecnico di Torino, Turin, Italy; PolitoBIOMed Lab, Politecnico di Torino, Turin, Italy; Physical Medicine and Rehabilitation Unit of IRCCS - Istituto Ortopedico Rizzoli, Bologna, Italy; Il Clinic of Orthopaedics and Traumatology of IRCCS - Istituto Ortopedico Rizzoli, Bologna, Italy; Department of Life Quality Studies of the University of Bologna, Bologna, Italy
- 10 Evaluation of patient slipping in intensive care unit articulated bed: contact pressures and kinematic in healthy volunteers**
Guiotto Annamaria; Cibir Federica; Sawacha Zimi
Department of Information Engineering, University of Padua, Padua, Italy; b BBSof srl, Padova, Italy; c Department of Medicine, University of Padua,

- Padua, Italy*
- 11 Identification of asymptomatic neuropathy in diabetic patients from static posture data**
Mengarelli Alessandro; Tigrini Andrea; Verdini Federica; Scattolini Mara; Mobarak Rami; Rabini Rosa Anna; Burattini Laura; Fioretti Sandro
Department of Information Engineering, Università Politecnica delle Marche, Ancona, Italy; Department of Diabetology, Mazzoni Hospital, Ascoli Piceno, Italy
- 12 Distribution of plantar pressures during stance and gait in patients with incomplete spinal cord injury**
Mirando Marta a,b; Pavese Chiara a,c; Nardone Antonio a,b,c
a Department of Clinical-Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Pavia, Italy; b Centro Studi Attività Motorie, ICS Maugeri SPA SB, Institute of Pavia, IRCCS, Pavia, Italy; c ICS Maugeri SPA SB, Institute of Pavia, IRCCS, Pavia, Italy
- 13 Arm swing reduction in Parkinson disease: a study with a network of wearable sensors**
Patera Martina 1; Pietrosanti Luca 2; Zampogna Alessandro 1; Calado Alexandre 2; Pisani Antonio 3-4; Fattapposta Francesco 1; Verrelli Cristiano Maria 2; Rosati Viviana 5; Giannini Franco 2; Saggio Giovanni 2; Suppa Antonio 1-6
1. Department of Human Neurosciences, Sapienza University of Rome, Italy 2. Department of Electronic Engineering, University of Rome Tor Vergata, Rome, Italy 3. Department of Brain and Behavioral Sciences, University of Pavia, Italy 4. IRCCS Mondino Foundation, Pavia, Italy 5. A.O.U. Policlinico Umberto I, Rome, Italy 6. IRCCS Neuromed, Pozzilli, Italy
- 14 The relevance of motion study in the cirrhotic patient: preliminary results of a prospective observational study**
Pezzola Giorgia; Elia Stefania; Saletti Carlos Leon; Merli Manuela; Ridola Lorenzo; Stefano Filippo Castiglia; Dante Trabassi; Mariano Serrao
Department of Medical and Surgical Sciences and Biotechnologies, Sapienza University of Rome - Polo Pontino
- 15 Assessment of IMU-based measurements for routine functional evaluation of patients with rare bone diseases**
Pollicini Chiara; Ortolani Maurizio; Mordenti Marina; Di Sipio Enrica; Moroni Alice; Sangiorgi Luca; Bonfiglio Alessandro; Leardini Alberto
Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, Italy; Rare skeletal disorders, Istituto Ortopedico Rizzoli, Bologna, Italy; Euleria Health s.r.l., Rovereto, Italy

- 16 Abdominal plastic: a postural and biomechanical evaluation before and post-surgery**
Terribile Juri; Furcas Luca; Fioramonti Paolo; Mangone Massimiliano; Paoloni Marco
1 Department of Anatomical and Histological Sciences, Legal Medicine and Orthopedics, Sapienza University, Rome, Italy 2 Unit of Plastic and Reconstructive Surgery Department of Surgery "P Valdoni" "Sapienza" University Rome, Italy
- 17 The impact of increased perceived fatigue on postural control during a standing task in people with parkinson's disease**
Anastasi Denise; Crippa Alessandro; Bowman Thomas; Arcuri Pietro; Baglio Francesco; Bertoni Rita; Castagna Anna; Meloni Mario; Saibene Francesca Lea; Saresella Marina; Cattaneo Davide
IRCCS Fondazione Don Carlo Gnocchi, Milan; UOC Neurologia; Azienda Ospedaliero-Universitaria, Cagliari, Italy; Department of Pathophysiology and Transplantation, University of study Milan, Italy
- 18 Inter-limb muscle synergy similarity as marker of post-stroke impairment in Box & Block Test**
Colamarino Emma; Pichiorri Floriana; de Seta Valeria; Lorusso Matteo; Tamburella Federica; Mattioli Luca; Mileti Ilaria; Palermo Eduardo; Mattia Donatella; Cincotti Febo; Toppi Jlenia
Sapienza University of Rome, Rome, Italy; IRCCS Fondazione Santa Lucia, Rome, Italy; University Niccolò Cusano, Rome, Italy
- 19 Anticipatory responses characterize the Alzheimer's Disease continuum in a reaching task**
de Nobile Alessia; Borghi Ilaria; De Pasquale Paolo; Berger Denise; Maselli Antonella; Bibbo Daniele; Conforto Silvia; Lacquaniti Francesco; Koch Giacomo; d'Avella Andrea; Russo Marta
Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundation, Rome, Italy; Department of Industrial, Electronic and Mechanical Engineering, Roma Tre University, Rome, Italy; Experimental Neuropsychophysiology Lab, IRCCS Santa Lucia Foundation, Rome, Italy; Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy; Department of System Medicine, Tor Vergata University, Rome, Italy; Institute of Cognitive Sciences and Technologies, National Research Council (CNR), Rome, Italy; Department of Neurology, Tor Vergata Polyclinic, Rome, Italy
- 20 The velocity-dependent features of rigidity in Parkinson's disease: a robot-assisted neurophysiological study**
Falletti Marco; Asci Francesco; Zampogna Alessandro; Patera Martina; Suppa Antonio
Department of Human Neurosciences, Sapienza University of Rome, Italy; IRCCS Neuromed Institute, Pozzilli (IS), Italy

- 21 Variability and correlation analysis of postural stability and plantar pressure parameters in open and closed eyes conditions**
Fullin Allegra; Caravaggi Paolo; Leardini Aberto; Lucariello Angela; Perna Angelica; Guerra Germano; De Luca Antonio; De Blasiis Paolo
Department of Mental and Physical Health and Preventive Medicine, Section of Human Anatomy, University of Campania "Luigi Vanvitelli", Naples, Italy; Movement Analysis Laboratory, IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy; Department of Medicine and Health Sciences "Vincenzo Tiberio", University of Molise, Campobasso, Italy; Department of Sport Sciences and Wellness, University of Naples "Parthenope", Naples, Italy
- 22 The neural bases of sensory reweighting for postural control: a neuro-computational model**
Monti Melissa; Bisi Maria Cristina; Stagni Rita; Cuppini Cristiano
Dept. of Electrical, Electronic and Information Engineering, University of Bologna, Bologna, Italy
- 23 Neuromechanical adjustments in human walking with bent posture**
Nunez-Lisboa Mario; Dewolf Arthur Henri
Exercise Science Laboratory, School of Kinesiology, Faculty of Medicine, Santiago, Chile; Laboratoire de biomécanique et physiologie et la locomotion, Institute of Neuroscience, UCLouvain Louvain-la-Neuve, Belgium
- 24 Balance strategy as consequence of gait perturbation**
Petrarca Maurizio, Favetta Martina, Summa Susanna
Bambino Gesù Children's Hospital, Neurorehabilitation and Robotics, Rome, Italy
- 25 Synergy-specific dynamical patterns in sit-to-stand movement**
Ranaldi Simone; De Marchis Cristiano
Università Roma Tre, Italy; Università di Messina, Italy
- 26 Muscle activity during passive and spontaneous movements in preterm and full-term infants**
Rubeca Damiana 1; Dolinskaya Irina 2,3; Solopova Irina 2; Dmitry Zhvansky 2; Sylos-Labini Francesca 1,4; Lacquaniti Francesco 1,4; Ivanenko Yuri 1
1Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundation, Rome, Italy; 2Institute for Information Transmission Problems, Russian Academy of Sciences, Moscow, Russia; 3Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russia; 4Department of Systems Medicine and Center of Space Biomedicine, University of Rome Tor Vergata, Rome, Italy
- 27 Changes in anticipatory postural adjustment prior to gait initiation after lower limb immobilization**
Sgubin Giulia; Trobec Belinda; Canton Gianluca; Deodato Manuela; Murena Luigi
Department of Life Science, University of Trieste, Trieste, Italy; Department of

- 28** *Medicine, Surgery and Health Sciences, University of Trieste, Trieste, Italy*
Interpersonal coordination during walking with hand contact
Villani Margherita; Sylos-Labini Francesca; Ivanenko Yuri; Lacquaniti Francesco
Laboratory of Neuromotor Physiology, IRCCS Fondazione Santa Lucia, Rome, Italy; Department of Systems Medicine and Center of Space Biomedicine, University of Rome Tor Vergata, Rome, Italy
- 29** **Biomechanical efficacy of botulinum toxin treatment on gait in camptocormia associated with Pisa syndrome in Parkinson's disease**
Bacchini Massimo; Chiari Giangiacomo; Rossi Michele; Bacchini Costanza; Rovacchi Claudio; Brambilla Valerio
Don Carlo Gnocchi Foundation - Onlus - S. Maria ai Servi Center, Parma, Italy
- 30** **A 24-year-old girl with Friedreich's Ataxia and focal mechanical vibration: a case report**
Camerota Filippo; Terribile Juri; Furcas Luca; Miotti S. ; Celletti C. ; Mangone Massimiliano; Paoloni Marco
1 Department of Anatomical and Histological Sciences, Legal Medicine and Orthopedics, Sapienza University, Rome, Italy 2 Physical Medicine and Rehabilitation Division, Umberto I University Hospital of Rome, Italy
- 31** **Combo Mixed-Reality system empowering occupational therapy and daily-life actions of visually impaired**
Franzò Michela; Pascucci Simona; Serrao Mariano; Marinozzi Franco; Fabiano Bini
Department of Mechanical and Aerospace Engineering, "Sapienza" University of Rome, Rome, Italy; National Centre for Clinical Excellence, Healthcare Quality and Safety, Italian National Institute of Health, Rome, Italy; Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Rome, Italy
- 32** **A decision support system for the personalization of robotic rehabilitation of the upper limb in patients with stroke outcomes. A feasibility study**
Germanotta Marco; Camardella Cristian; Cortellini Laura; Pavan Arianna; Cappiello Giovanni; Curto Zoran; Mazzoleni Stefano; Scoglio Andrea; Frisoli Antonio; Aprile Irene
IRCCS Fondazione Don Carlo Gnocchi, Florence, Italy; Scuola Superiore Sant'Anna, Pisa, Italy; Humanware, Pisa, Italy; Politecnico di Bari, Bari, Italy
- 33** **The potential role of kinematics and electromyography on rehabilitation treatment and follow up in adults with peripheral neuropathy of upper extremity: case series**
Giannotti Erika a; Parel Ilaria b; Merolla Giovanni c; Galassi Riccardo a; Paladini Paolo c
a Functional Recovery and Rehabilitation Unit, AUSL della Romagna, Rimini, Italy. b Laboratory of Biomechanics "M. Simoncelli", Cervesi Hospital, Cattolica, Italy. c Unit of Shoulder and Elbow Surgery, Cervesi Hospital, Cattolica, Italy

- 34 Overground exoskeleton for gait training in children with cerebral palsy: a pilot study**
Manzia Carlotta Maria a; Infarinato Francesco a; Di Girolamo Gabriella a; Majolini Lucia Amata a; Condoluci Claudia a; Goffredo Michela a; Cioeta Matteo a; Thouant Carrie-Louise a; Cocco Elena Sofia a; Franceschini Marco
IRCCS San Raffaele Roma, Rome, Italy
- 35 Study of neuroplasticity by high-density EEG in post-stroke patients following robot-assisted upper-limb rehabilitation**
Mauro Maria Cristina; Mazza Alice; Germanotta Marco; Cortellini Laura; Comanducci Angela; Aprile Irene; Guglielmelli Eugenio
IRCCS Fondazione Don Carlo Gnocchi, Florence, Italy; IRCCS Fondazione Don Carlo Gnocchi, Milan, Italy; Università Campus Bio-Medico, Rome, Italy
- 36 Rhythmic Acoustic Stimulation Reduces Gait Variability in Elderly Subjects: A Networkbased Analysis**
Minino Roberta; Liparoti Marianna; Romano Antonella; Troisi Lopez Emahnel; Sorrentino Giuseppe
University of Naples Parthenope, Naples, Italy; Telematic University Pegaso, Rome, Italy; Institute of Applied Science and Intelligent System, Naples Italy
- 37 Virtual Art Therapy for patients with stroke: a kinematic analysis of virtual sculpturing**
Forte Giorgia; **Pascucci Simona**; Angelina Elena; Tieri Gaetano; Bini Fabiano; Marinozzi Franco; Iosa Marco
Department of Mechanical and Aerospace Engineering, "Sapienza" University of Rome, Rome, Italy; National Centre for Clinical Excellence, Healthcare Quality and Safety, Italian National Institute of Health, Rome, Italy; Department of Psychology, "Sapienza" University of Rome, Rome, Italy; Laboratory of Virtual Reality and Digital Neuroscience UnitelmaSapienza, Rome, Italy; Smart Lab, IRCCS Santa Lucia Foundation, Rome, Italy
- 38 Impact of visual feedback on patient-therapist interaction during robotic gait rehabilitation in individuals with spinal cord injury: a multimodal eye-tracking and HD-EEG study**
Patarini Francesca; Pichiorri Floriana; Tamburella Federica; Ranieri Andrea; Lorusso Matteo; Serratore Giada; Bigioni Alessandra; Masciullo Marcella; Scivoletto Giorgio; Mattia Donatella; Toppi Jlenia
IRCCS Fondazione Santa Lucia, Rome, Italy; Sapienza University of Rome, Rome, Italy
- 39 Implementing an immersive virtual reality protocol for functional gait disorders: an experimental study**
Salaorni Francesca; Bonardi Giulia; Menaspà Zoe; Sandri Angela; Malgarise Luca; Schena Federico; Tinazzi Michele; Gandolfi Marialuisa
University of Verona, Verona, Italy

40 Correlation between biomechanical outcomes and neurophysiological biomarkers in patients with stroke undergoing upper limb motor neurorehabilitation: protocol trial

Seregni Agnese; Tropea Peppino; Nalin Marco; Del Chicca Irene; Corbo Massimo

Department of Neurorehabilitation Sciences, Casa di Cura Igea, Milan, Italy; Research and Innovation Department, ab medica S.p.A., Cerro Maggiore (MI), Italy; Research and Innovation Department, ab medica S.p.A., Cascina (PI), Italy

41 Preliminary results of a biomechanical risk assessment of an actual industrial use-case executed with and without a dual-arm CoBot

Silvetti Alessio; Draicchio Francesco; Chini Giorgia; Varrecchia Tiwana; Sonny Tarbouriech; Benjamin Navarro; Andrea Cherubini; Alberto Ranavolo
DIMEILA, INAIL, Lab. Ergonomia e Fisiologia; LIRMM, University of Montpellier, CNRS

42 SensoFlex: a novel exergame device for motor-cognitive telerehabilitation in older adults

Carpinella Ilaria; Seinsche Julia; de Bruin Eling D.; Moza Sotiria; Rizzo Francesco; Saibene Enrico; Giannouli Eleftheria; Ferrarin Maurizio
IRCCS Don Carlo Gnocchi Foundation, Milan, Italy; ETH Z, Zurich, Switzerland; Eastern Swiss University of Applied Sciences, St. Gallen, Switzerland; Materia Group, Nicosia, Cyprus; University of Basel, Basel, Switzerland

GIOCHI SIAMOC

Stefano Filippo Castiglia, Guido Pasquini, Peppino Tropea

13.00 Light Lunch

14.15 LETTURA MAGISTRALE 6

Moderatori: Gabriella Ceravolo, Giovanni Morone

La riabilitazione del XXI secolo

Francesca Gimigliano - *Università degli Studi della Campania, Caserta, Italia*

Presentazioni Orali - SESSIONE 5
Sessione congiunta SIAMOC-SIRN-SIMFER
L'ANALISI DEL MOVIMENTO PER LA RIABILITAZIONE
E LA TELERIABILITAZIONE

Moderatori: Irene Aprile, Michelangelo Bartolo, Antonio Nardone

15.00

Evaluating the Safety and Efficacy of a Memorized Weight-Shifting intervention designed to help people with Parkinson's overcome freezing of gait

Russo Yuri; Leveridge Phaedra; Wang Zijing; Ye Jiaxi; Wilson Mark; Nieuwboer Alice; Kal Elmar; Norris Meriel; Lamb Sarah; Harris David; Bassitt James; Young William

University of Exeter, Exeter, UK; KU Leuven, Leuven, Belgium; Brunel University, London, UK

15:11

Immediate effects of trunk rotator stretching exercise on gait parameters in subjects with Parkinson's disease: a randomized clinical trial

Castiglia Stefano Filippo; Trabassi Dante; Pili Andrea; Pennafina Chantal; Trani Elenia; D'Aversa Roberta; De Mattia Michela; Sinibaldi Elisabetta; Ranavolo Alberto; MonariGiuseppe; Conte Carmela; Serrao Mariano
Department of Medical and Surgical Sciences and Biotechnologies, "Sapienza" University of Rome, Polo Pontino, Latina; Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; I.C.O.T. Hospital, Latina, Italy; Department of Occupational and Environmental Medicine, Epidemiology and Hygiene, INAIL, Monte Porzio Catone, Italy; Movement Analysis LAB, e Policlinico Italia, Rome, Italy

15:22

Effect of botulinum toxin injection on clinical and instrumental measures of walking ability in post-stroke patients with equinus foot deviation. A prospective cohort study

Mirandola Matteo; Campanini Isabella; Cirio Valentina; Smania Nicola; Picelli Alessandro; Merlo Andrea

AOU-Integrated University Hospital Corporation, Neurorehabilitation Unit, Verona; LAM Motion Analysis Laboratory, Neuromotor and Rehabilitation Dep., AUSL-IRCCS Reggio Emilia; Neuromotor and Cognitive Rehabilitation Research Centre, University of Verona, Verona

15:33

Implementation of a customized treatment protocol, based on clinical outcomes, for the treatment of the upper limb after stroke using a set of robotic devices

Pavan Arianna; Germanotta Marco; Cortellini Laura; Lattanzi Stefania; Dionisya Papadopoulou; Insalaco Sabina; Aprile Irene

IRCCS Fondazione Don Carlo Gnocchi, Florence, Italy

- 15:44** **A novel upper limb rehabilitation protocol for chronic post-stroke bimanual reaching tasks based on virtual reality and myoelectric control**
De Pasquale Paolo; De Bartolo Daniela; Russo Marta; Berger Denise; Maselli Antonella; Borzelli Daniele; Tramontano Marco; Nissler Christian; Nowak Markus; Castellini Claudio; Morone Giovanni; d'Avella Andrea
Laboratory of Neuromotor Physiology, IRCCS Fondazione Santa Lucia, Rome, Italy; Department of Biomedical, Dental, Morphological and Functional Imaging Sciences, University of Messina, Messina, Italy; Neurology Department, Tor Vergata Polyclinic, Rome, Italy; Department of Systems Medicine and Center of Space Biomedicine, University of Rome Tor Vergata, Rome, Italy; Institute of Cognitive Sciences and Technologies, Consiglio Nazionale delle Ricerche (CNR), Rome, Italy; Clinical Laboratory of Experimental Neurorehabilitation, IRCCS Fondazione Santa Lucia, Rome, Italy; Institute of Robotics and Mechatronics, German Aerospace Center (DLR), Weßling, Germany; Assistive Intelligent Robotics Lab, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen, Germany; Department of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila, Italy; San Raffaele Institute of Sulmona, Sulmona, Italy
- 15:55** **Correlating Clinical Functional Scales with Gait Analysis and Wearable Inertial Device after one-month Rehabilitation program in a patient with acquired K1 Transfemoral Amputation: A case report**
Sveva Valerio a, Cusolito Giovanni a, Maggi Giuseppe b, Mangone Massimiliano a, Paoloni Marco a,b
a Department of Anatomical and Histological Sciences, Legal Medicine and Orthopedics, Sapienza University, Rome, Italy; b Policlinico Umberto I University Hospital, Sapienza University of Rome, Rome, Italy
- 16:06** **A serious game to evaluate throwing performance in altered gravity conditions**
Porco Ilaria Giuseppina; Rizza Martina Francesca; Pica Andrada; Solinas Sergio; Mauro Gavino; Della Croce Ugo
Department of Biomedical Sciences, University of Sassari, Italy
- 16:17** **Exploring the potential of low cost IMUs for telerehabilitation: the REHACT case study**
Caramia Federico; D'Angelantonio Emanuele; Lucangeli Leandro; Camomilla Valentina
University of Rome "Foro Italico", Rome, Italy; Technoscience, Latina, Italy
- 16.30 Coffee break

17.00 **“THE BATTLE” - Sessione congiunta SIAMOC-AIFI**
Moderatori: Isabella Campanini, Andrea Merlo

**Tecnologia all'avanguardia nella riabilitazione:
l'eterna promessa**

Federica Tamburella - *Fondazione S. Lucia, Roma, Italia*

Vs

Stefano Filippo Castiglia - *Sapienza Università di Roma, Italia*

17.45 **Assemblea Generale
ed Elezioni per il rinnovo del Consiglio Direttivo SIAMOC**

19.00 Conclusione della giornata

08.00 Registrazione Congresso

09.00 LETTURA MAGISTRALE 7

Moderatori: Maria Cristina Bisi, Yuri Ivanenko

Il ruolo dell'attrito articolare e tissutale nel bilancio energetico meccanico della locomozione umana

Alberto Minetti - *Università di Milano, Italia*

Presentazioni Orali - SESSIONE 6

STRUMENTI E METODI PER L'ANALISI DEL MOVIMENTO

Moderatori: Valentina Camomilla, Antonio Caronni

09.45 Pose estimation methods for automatic general movements assessment in infants: influence of video acquisition settings and processing

Stagni Rita, Doto Tommaso; Tomadin Arianna; Sansavini Alessandra;

Aceti Arianna; Corvaglia Luigi Tommaso; Bisi Maria Cristina

DEI- Unibo, Bologna, Italy; PSI-Unibo, Bologna, Italy; DIMEC-Unibo, Bologna, Italy

09:56 Gait deviation index to quantify the short-term effects of functional surgery on walking kinematics in patients with cerebral palsy. A prospective cohort study

Basini Giacomo; Prati Paolo; Zerbinati Paolo; Rambelli Chiara;

Galletti Martina; Bemporad Jonathan; Mascioli Francesca;

Montemaggi Paolo; Ehsani Alessandro; Vetrano Mario; Merlo Andrea;

Mazzoli Davide

Gait&Motion Analysis Laboratory, Sol et Salus Hospital, Torre Pedrera di Rimini (RN), Italy; Sapienza University, Sant' Andrea Hospital, Rome, Italy

10:07 Real-time lower limb joint kinematics during walking in real-world based on a minimum measured - input model: proof of concept

Francesca Samira, Caruso Marco, Cereatti Andrea

Politecnico di Torino, Turin, Italy

10:18 Gait smoothness during straight and curvilinear gait in patients with multiple sclerosis: does the data source matter?

Brasiliano Paolo; Montemurro Rebecca; Orejel-Bustos Amaranta Soledad;

Tramontano Marco; Argento Ornella; Nocentini Ugo; Vannozzi Giuseppe;

Belluscio Valeria; Bergamini Elena

University of Rome "Foro Italico", Rome, Italy; IRCCS Santa Lucia Foundation, Rome, Italy

- 10:29 Identifying the best discriminative gait features to characterize disease progression in Multiple Sclerosis**
Orejel Bustos Amaranta Soledad; Tramontano Marco; Montemurro Rebecca; Belluscio Valeria; Argento Ornella; Bossa Michela; Nocentini Ugo; Vannozzi Giuseppe
IRCCS Santa Lucia Foundation; University of Rome "Foro Italico"; Tor Vergata University of Rome
- 10:40 Gait analysis synthetic indexes as predictors of intensive multidisciplinary neurorehabilitation outcomes in multiple sclerosis: methodological aspects**
Seregni Agnese; Pisasale Mariangela; Corbo Massimo; Comi Giancarlo; Leocani Letizia; **Tropea Peppino**
Department of Neurorehabilitation Sciences, Casa di Cura Igea, Milan, Italy; Experimental Neurophysiology Unit, Institute of Experimental Neurology-IN-SPE, Milan, Italy; San Raffaele Vita-Salute University, Milan, Italy
- 10:51 A novel force-constrained non-negative matrix factorization algorithm demonstrates that muscle synergies are useful in force control**
Berger Denise Jennifer; Lacquaniti Francesco; d'Avella Andrea
- 11:02 Exploring Test-Retest Reliability of Spatio-Temporal Gait Metrics in Foot Drop Patients**
Coccia Armando; **Pagano Gaetano**; Amitrano Federica; Biancardi Arcangelo; Iaselli Giovanni; D'Addio Giovanni
Bioengineering Unit Telesse Terme and Bari, ICS Maugeri SPA SB, Pavia, Italy

11.15 Coffee Break

Presentazioni Orali - SESSIONE 7

APPLICAZIONI SPORTIVE E CLINICHE

Moderatori: Cristiano De Marchis, Annamaria Guiotto

- 11:45 Anterior cruciate ligament injury risk parameters during landing: are knee angles at ground contact correlated with ranges of motion after landing?**
Baldazzi Andrea; Borzuola Riccardo; Rum Lorenzo; Pillet H el ene; Margheritini Fabrizio; Macaluso Andrea; Bergamini Elena
University of Rome "Foro Italico", Rome, Italy; Sapienza University of Rome;

- 11:56** *Arts et Métiers ParisTech, Paris, France*
Risk of injury and kinematic assessment of the shoulder biomechanics during strokes in padel players: a cross-sectional study
Demeco Andrea; de Sire Alessandro; Marotta Nicola; Spanò Riccardo; Carozzo Simone; Frizziero Antonio; Costantino Cosimo; Ammendolia Antonio
University of Rome "Foro Italico", Rome, Italy; Sapienza University of Rome; Arts et Métiers ParisTech, Paris, France
- 12:07** **The Mini-BESTest scale and the TUG test turning duration have satisfactory criterion validity as balance measures: a longitudinal study with prospective falls reporting in neurological patients**
Caronni Antonio; Michela Picardi; Scarano Stefano; Malloggi Chiara; Tropea Peppino; Gilardone Giulia; Aristidou Evdoxia; Pintavalle Giuseppe; Redaelli Valentina; Antoniotti Paola; Corbo Massimo
IRCCS Istituto Auxologico Italiano, Department of Neurorehabilitation Sciences, Ospedale San Luca, Milan, Italy; Department of Biomedical Sciences for Health, University of Milan, Milan, Italy; Department of Neurorehabilitation Sciences, Casa di Cura Igea, Milan, Italy
- 12:18** **Comparing vertical ground reaction force in patients with Parkinson's disease and healthy subjects walking on a circular path**
Giardini Marica; Turcato Anna Maria; Corna Stefano; Godi Marco
Istituti Clinici Scientifici Maugeri Spa SB, IRCCS, Veruno (NO), Italy; The Clavadel, Guildford, UK
- 12:29** **Association between average daily steps measured through a commercial smartwatch and clinical parameters in Parkinson's Disease**
Bianchini Edoardo; Di Pietro Giulia; Galli Silvia; Alborghetti Marika; Rinaldi Domiziana; De Carolis Lanfranco; Pacilio Pierre; Pontieri Francesco Ernesto
Department of Neuroscience, Mental Health and Sensory Organs (NESMOS), Sapienza University of Rome, Rome, Italy; Autonomie, Gérontologie, E-santé, Imagerie et Société (AGEIS) Laboratory, Université Grenoble Alpes, Grenoble, France
- 12:40** **Instrumental Gait Assessment in Early-stage Multiple Sclerosis**
Marliani Virna; Pasquini Guido; Gerli Filippo; Portaccio Emilio; Betti Matteo; Pancani Silvia; Sawacha Zimi; Amato Maria Pia; Mannini Andrea
University of Padua, Padua, Italy; IRCCS Don Carlo Gnocchi Foundation, Florence, Italy; Department NEUROFARBA, University of Florence, Florence,

12:51 *Italy*
Mechanical properties optimization and functional outcomes of an innovative passive dynamic custom Ankle-Foot Orthosis for foot drop patients
Caravaggi Paolo; **Rogati Giulia**; Zomparelli Alessandro; Cevolini Franco; Zamagni Luca; Baleani Massimiliano; Fognani Roberta; Boriani Luca; Arceri Alberto; Ortolani Maurizio; Berti Lisa; Leardini Alberto
IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy; CRP Technology, Modena, Italy; University of Bologna, Italy

13.00 **Premiazione e cerimonia di chiusura**

14.00 Conclusione dei lavori



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XXIII Congresso Nazionale SIAMOC

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 - Ortopedia e traumatologia
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