ICNR 2026

Friday, October 2nd					
Time	**Track A - Rehabilitation and Wearable Robotics** **Chairs**: Junho Choi, Jiyeon Kang, Denny Oetomo **Room A**	**Track B - AI and Computational Methods for Precision Rehabilitation** **Chairs**: Sang Hoon Kang, Jinsook Roh, Megan K. O'Brien **Room B**	**Track C - Clinical Motor Control** **Chairs**: Dong-Wook Rha, Ghaith Androwis **Room C**	**Track D - Neural Interfaces and Stimulation** **Chairs**: Jonghyun Kim, Thomas Bulea **Room D**	**Track E - Clinical Translation and Industry Track** **Chairs**: Zen Koh, Bong-Keun Jung , Jesus Tornero **Room E**
08:30-09:15	**Prof. Ursula Hofstoetter**, Plenary Lecture (Room A) Chair: Junho Choi				
09:15-10:45	**RWR02B** - From Data to Action: Wearable Sensor Technology to Drive Neurorehabilitation (II) **Chair**: Megan K. O'Brien	**RWR12** - Advances in Lower and Upper Extremity Rehabilitation Robotics for Persons with Mobility Disability **Chair**: Gail Forrest	**CMC05** - Advances in Technology-Assisted Gait Recovery **Chair**: Francesca Lunardini	**NIS09** - Frontiers in EMG-guided bioengineering to improve neuromotor control in neurorehabilitation **Chair**: Jinsook Roh	**NIS13** - Sensory Neuromodulation via Peripheral Stimulation: its Promising Future and Challenges **Chair**: Hangue Park
10:45-11:15	Coffee break				
11:15-12:45	**RWR13A** - Advanced Technologies for 3D Upper-Limb Robotic Rehabilitation:Hardware, Control, and Interaction (I) **Chair**: Jonghyun Kim	**NIS14** - Methods and Techniques in Neural Interfacing and Stimulation **Chair**: Kyung-In Jang	**NIS05** - Implantable BCIs to Restore Neurologic Function and Enhance Neurorecovery **Chair**: Daniel Rubin	**NIS10** - Clinical study on QEEG-guided precision neuromodulation **Chair**: Seung Wan Kang	**AICM04 -** Decoding Intention: Toward Effective and Personalized Neurorehabilitation through AI and Intelligent Systems **Chair**: D.S.V. Bandara
12:45-13:45	Lunch break				
13:45-14:30	**Prof. Claudio Castellini**, Plenary Lecture (Room A) Chair: Sung-Jae Kang				
14:30-16:00	**RWR13B** - Advanced Technologies for 3D Upper-Limb Robotic Rehabilitation:Hardware, Control, and Interaction (II) **Chair**: Hyunsoo Woo	**RWR08** - Advances in Exoskeleton and Prosthetic Systems for Human Augmentation and Neuro-Rehabilitation **Chair**: Younggeol Cho	**RWR05B -** From Lab to Life: Human Intention and Interaction in Wearable Rehabilitation Robotics (II) **Chair**: D.S.V. Bandara		
16:00-16:30	Closing Ceremony (Room A)				

Room A 09:15-10:45	**RWR02B - From Data to Action: Wearable Sensor Technology to Drive Neurorehabilitation (II)** Chairs: Megan K. O'Brien	ID153. Li Guo, Anna Björkquist, Maria Muñoz-Novoa, Margit Alt Murphy and Leif Sandsjö. A co-designed smart textile sEMG biofeedback system for post-stroke hand rehabilitation at home - Preliminary findings
		ID272. Fernando Urgiles, Daniel Andrade and Juan Guanuchi. Wearable Low-Cost Inertial System for Lower-Limb Kinematic Monitoring in Post-Stroke Rehabilitation
		ID345. Muhammad Umair Ahmad Khan, Mukaram Tariq, Mudassar Lateef, Eshwa-Tul Eman and Daniel O' Toole. GameWrist: An IMU based Wrist Rehabilitation Game with Assistive Joystick for
		ID394. Ludovica Viola, Giada Parodi, Georgii Kurshakov, Arianna Li Noce, Laura Bandini, Cecilia De Vicariis, Vittorio Sanguineti and Viola Biancheri. Real-time pose reconstruction to detect compensatory strategies in robot-assisted stroke rehabilitation

Room A 11:15-12:45	**RWR13A - Advanced Technologies for 3D Upper-Limb Robotic Rehabilitation:Hardware, Control, and Interaction (I)** Chair: Jonghyun Kim	ID038. Ho Moon Kim and Dong Min Choi. Design and Development of an Underactuated Hand Exoskeleton for Rehabilitation
		ID046. Minki Sin and Jangho Cho. Development of a Lightweight Upper Limb Exoskeleton for Interactive Rehabilitation Training
		ID115. Daehyun Kim and Chowon Park. Structural reserve–guided network biomarkers for predicting upper-limb recovery after stroke: Toward mechanism-informed adaptive robotic rehabilitation
		ID164. Sohyun Moon, Taegyun Kim and Jonghyun Kim. Toward a robust game-theoretic control framework for multi-DOF upper-limb rehabilitation robots

Room A 14:30-16:00	**RWR13B - Advanced Technologies for 3D Upper-Limb Robotic Rehabilitation:Hardware, Control, and Interaction (II)** Chair: Hyunsoo Woo	ID116. Taegyun Kim, Sohyun Moon and Jonghyun Kim. Generating Human-like Reaching Trajectories using End-Effector Kinematics for Robot-Assisted Rehabilitation
		ID193. Michele Canepa, Nicolò Boccardo, Matteo Laffranchi and Claudio Castellini. Interactive Real-Time Incremental Learning System for Prosthetic Control
		ID263. Siwoo Kim, Wonseok Shin, Bummo Ahn and Suncheol Kwon. Real-Time Upper-Limb Action Classification Using Multimodal sEMG–IMU Signals
		ID273. Junyeop Lee and Jinsoo Kim. Reducing Personalization Time for Exoskeleton Assistance Under Low Signal-to-Noise Ratio Conditions
		ID406. Heui-Sub Hyeon and Hyunsoo Woo. Development of a 3-DOF End-Effector Upper-Limb Rehabilitation Robot within an AI-Driven Multimodal Interactive Platform

Room B 09:15-10:45	**RWR12 - Advances in Lower and Upper Extremity Rehabilitation Robotics for Persons with Mobility Disability** Chair: Gail Forrest	ID097. Peter Snow, Ruchi Kaul, Nida Mir, Ashna Joshi, Sushma Sagar and Rui Loureiro. Affordable virtual reality sensorimotor robotic intervention for the management of Phantom Limb Pain in below elbow amputees following trauma
		ID101. Juan Fang, Capucine Nicolet, Michael Haldimann and Niklaus Stocker.Generation of Arm Swing Movement Using a Cable-driven Parallel Robotic Platform for Early Rehabilitation
		ID372. Gail Forrest, Christopher Cirnigliaro, Erica Garbarini, Pierre Asselin, Steven Knezevic and Ann Spungen. Exoskeleton Controller and Design Considerations Follow-up: Effect on Training Response for Persons with SCI
		ID383. Karen Nolan, Gregory R. Ames, Christina M. Dandola, Corey M. Greene, Katherine M. Broderick, Joshua Breighner and Soha Saleh. Robotic Exoskeleton Gait Training Improves Weight Transfer and Walking Speed in Subacute Stroke

Room B 11:15-12:45	**NIS14 - Methods and Techniques in Neural Interfacing and Stimulation** Chair: Kyung-In Jang	ID014. Yun-Sung Lee, Ga-Young Choi, Dong-June Yeo and Han-Jeong Hwang. Task-Based Individualized Transcranial Alternating Current Stimulation for Cognitive Function Improvement Based on Electroencephalography Study
		ID138. Irene Reginaldi, Francesca Magni, Mario Spirito, Simone Traverso, Alessandra Pedrocchi and Emilia Ambrosini. Development of a Finite State Machine–Based Iterative Learning Controller for Hybrid FES Gait Assistance
		ID171. Yujin Choi, Young Ro Kim, Euiheon Chung and Jiyeon Kang. A kHz Magnetic Stimulation Platform for In Vitro Neuromodulation Studies Based on an Axial-Flux Rotary-Transformer Geometry
		ID331. Kyung-In Jang. Mechanics-Guided Bioelectronic Systems: From Structural Design to Clinical Translation
		ID338. Min-Ho Seo, Sang-Min Kim, Yoo-Kyum Shin, Seok-Hoon Choi, Hyo-Kyeong Kwon and Seong Hyeok Park. In-situ Formed Micro/Nanostructured Dry Electrode for Long-term Reliable Bioelectrical Sensing and Stimulation in Neurorehabilitation

Room B 14:30-16:00	**RWR08. Advances in Exoskeleton and Prosthetic Systems for Human Augmentation and Neuro-Rehabilitation** Chair: Younggeol Cho	ID188. Byungwook Lee, Kyung-Soo Kim and Younggeol Cho. Spatial-Temporal Feature Learning for Simultaneous Estimation of Finger Flexion and Extension Force
		ID282. Dongho Park, Carson Wolff, Mitch Miller and Aaron Young. Visual Biofeedback for Voluntary Modulation of Hip Joint Work Symmetry Using a Tuning-Free Powered Hip Exoskeleton: A Pilot Study
		ID301. Seungjun Lee, Junho Choi and Hyunki In. Active Strap for Improved Comfort in Lower-Limb Exoskeletons
		ID356. Younggeol Cho, Pranav Mamidanna, Laura Ferrante and Dario Farina. Spatial Representations of Forearm muscle activation for HD-EMG based Control and Assessment: Motor-Unit Localization and Direct Projection
		ID367. Yumna Khalid and Sigrid Dupan. Effect of learning and feedback assistance on the sense of agency during myoelectric control

Room C 09:15-10:45	**CMC05 - Advances in Technology-Assisted Gait Recovery** Chair: Francesca Lunardini	ID060. Javier V. Juan, Rubén Martínez, Eduardo Iáñez, Mario Ortiz, Jesús Tornero and Jose M. Azorin. EEG data augmentation with conditional Variational AutoEncoder and Temporal Convolutional Networks for EEG-based pedaling motor imagery decodification
		ID147. Dongwon Jeong, Seongsik Oh, Sungjun Jeong and Woojoong Kim. Multimodal Analysis of Sequencing-Dependent Coordination in Instrumented Walker-Assisted Gait
		ID150. Agnese Cherubini, Natacha León, Clara Beatriz Sanz-Morère, Elena de Eusebio Rubio, Juan Camilo Moreno, Jesús Tornero and Francesca Lunardini. Robot-assisted gait therapy in post-stroke patients: preliminary evidence linking stable longitudinal assistance settings to greater clinical improvement
		ID235. Marica Ferrara, Federica Tamburella, Jlenia Toppi, Floriana Pichiorri, Francesca Patarini, Shiva Mohebban, Giada Serratore, Alessandra Bigioni, Giorgio Scivoletto, Donatella Mattia and Nevio Luigi Tagliamonte. Quantifying Task-Specific Active Patient Participation during Robot-Assisted Gait Training for Spinal Cord Injury

Room C 11:15-12:45	**NIS05 - Implantable BCIs to Restore Neurologic Function and Enhance Neurorecovery** Chair: Daniel Rubin	ID078. Leigh Hochberg. Neuroscience of iBCIs and an Introduction to BrainGate
		ID086. Sergey Stavisky and Nicholas Card. High performance speech neuroprostheses
		ID098. Kushaal Rao, Henry Jenkins, Jacob Gusman, Maarten Ottenhoff, Ruixiang Li, Alexander Acosta, Lucille Panagos, Andrew Dempsey, Shane Allcroft, Emilia Mann, James Arnold, David Pont-Esteban, Harrison Young, Umut Civici, Connor McCann, Conor Walsh, Daniel Rubin, John Simeral, Carlos Vargas-Irwin and Leigh Hochberg. Controlling Soft Robotic Systems Using an Implantable Brain Computer Interface
		ID286. Abidemi Ajiboye, Emily Graczyk and Jennifer Sweet. Neural Interfaces for Sensorimotor Restoration after Tetraplegia

Room C **14:30-16:00**	**RWR05B - From Lab to Life: Human Intention and Interaction in Wearable Rehabilitation Robotics (II)** Chair: D.S.V. Bandara	ID262. Minhye Kim, Jaewoo Cho, Hong Min and Jooeun Ahn. Aftereffects of Step Length Asymmetry Induced by a Commercial Hip Exoskeleton
		ID265. Byeori Han, Jinkyu Lee and Won-Kyung Song. Home-Based Exosuit Intervention Improves Walking Mobility and Daily Activity in Community-Dwelling Stroke Survivors
		ID247. Jumpei Arata, Nobutaka Mukae, Takashi Takebayashi and Hiroshi Kanatani. Exploratory Clinical Application of an EMG-based Motion Intention–Driven Hand Rehabilitation Robot
		ID395.Christian Mele, James Tung and Katja Mombaur. Design and Analysis of Controllers for Lower-Limb Exoskeleton Mannequin for Evaluating Interactions at the Coupling Interface

Room D **09:15-10:45**	**NIS09 - Frontiers in EMG-guided bioengineering to improve neuromotor control in neurorehabilitation** Chair: Jinsook Roh	ID135. Dailyn Despradel, Maxwell Murphy, Luigi Borda and Douglas Weber. Decoding controls for human-computer interaction from motor unit firing rates in people with tetraplegia due to spinal cord injury
		ID160. Abed Khorasani, Cynthia Gorski, Jinsook Roh, Ken Paller and Marc Slutzky. Wearable myoelectric interface for neurorehabilitation (MINT) combined with targeted memory reactivation to reduce abnormal co-activation and improve arm function in people with stroke
		ID228. R. James Cotton. Frontiers in EMG-guided bioengineering to improve neuromotor control in neurorehabilitation: Wearable gamified electromyographic biofeedback to improve arm function in people with spinal cord injury
		ID319. Supraja Vaidhyanathan, Gang Seo, Michael Houston, Manuel Portilla-Jiménez, Jeong-Ho Park, Hangil Lee, Sheng Li, Yingchun Zhang, Hyung-Soon Park and Jinsook Roh. Effects of EMG-Guided New Muscle Coordination Development on Neurophysiological Connectivity in Chronic Stroke: A Pilot Study

Room D **11:15-12:45**	**NIS10 - Clinical study on QEEG-guided precision neuromodulation** Chair: Seung Wan Kang	ID036. Hsing-Han Wang and Tzung-Chang Tsai. EEG-Based Assessment of rTMS Treatment Response in Disorders of Consciousness
		ID050. Haruto Takase, Masaki Fukunaga, Wenwei Yu and Jose Gomez-Tames. A Deep Learning Model for Predicting TMS-Induced MEPs from Brain Electric Field Maps
		ID128. Dogeun Park, Jeong-Woo Jang, Minseo Hwangbo and Dong-Ok Won. Modulation of ERP-based BCI Attention Performance through Short-term Respiratory Pattern Control

Room E **09:15-10:45**	**NIS13 - Sensory Neuromodulation via Peripheral Stimulation: its Promising Future and Challenges** Chair: Hangue Park	ID074. Milica Baljic, Vladimir Kojic, Filip Budimir, Marta Mirkov, Nebojsa Malesevic and Matija Strbac. Screen-printed UV curable hydrogel as skin-electrode interface in hybrid electrodes for EMG recording and electrotactile stimulation
		ID191. June Seung Lee, Younsu Jung, Hyejin Park, Sajjan Parajuli, Sagar Shrestha, Gyoujin Cho and Hangue Park. Flexible, MCU-less Roll to Roll Printed Neurostimulator for Wearable Neurorehabilitation
		ID305. Jiseung Kang and Hangue Park. Electrotactile Temporal Resolution via a Tactile Gap-in-Noise (tGIN) Paradigm: A Comparison between Fingertip and Tongue Tip
		ID308. Hamdi Qraiqea and Hangue Park. Wearable Wristband Stimulator for Motion-Dependent Electrotactile Sensory Feedback

Room E **11:15-12:45**	**AICM04 - Decoding Intention: Toward Effective and Personalized Neurorehabilitation through AI and Intelligent Systems** Chair: D.S.V. Bandara	ID126. Shaikha Alnuaimi, Soha Ahmed, Hamad Al Jassmi and Fady Alnajjar. A Multimodal Large Language Model-Based Framework for Home Monitoring of Emotional Dysregulation: A Feasibility Study
		ID181. Edgard J. Barazorda, D.S.V. Bandara and Jumpei Arata. Benchmarking Dynamic Functional Connectivity Methods Toward Adaptive BCI for Robotic Neurorehabilitation
		ID206. Isabella Montanaro and Levi Hargrove. Toward Deployable, Robust EMG Pattern Classification: LDA, Deep Learning, and Hybrid Approaches
		ID284. Malik Muhammad Naeem Mannan, Alastair R. J. Quinn, Yana Salchak, David G. Lloyd and Claudio Pizzolato. Effects of Training Length and Update Interval on Calibration-Free Adaptive Brain-Computer Interfaces
		ID224. Amila Kariyawasam, D.S.V. Bandara and Shunji Kimura. Forearm Mechanical-state Recognition using an SVM-based Wearable Fiber-Optic Sensor

ICNR 2026