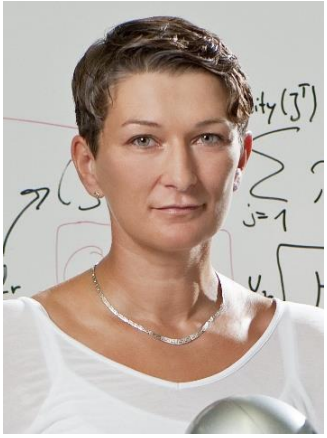
DETAILED PROGRAM – Wednesday 4 September

PLENARY SPEAKER 5 – Sandra Hirche (Neue Aula, 9:00 – 9:50)



***Title*: Personalized control for neurorehabilitation**

Bio: Sandra Hirche holds the TUM Liesel Beckmann Distinguished Professorship and heads the Chair of Information-oriented Control in the Department of Electrical and Computer Engineering at Technical University of Munich (TUM), Germany (since 2013). She graduated in Aeronautical and Aerospace Engineering in 2002 from the Technical University Berlin, Germany, and obtained her PhD in Electrical and Computer Engineering in 2005 from TUM. From 2005-2007 she has been a PostDoc Fellow of the Japanese Society for the Promotion of Science at the Fujita Laboratory at Tokyo Institute of Technology, Japan. Her main research interests include learning, cooperative, and networked control with applications in human-robot interaction, multi-robot systems, and general robotics. She has published more than 200 papers and received multiple awards such as the Rohde & Schwarz Award for her PhD thesis, the IFAC World Congress Best Poster Award in 2005, an ERC Starting Grant and an ERC Consolidator Grant. Sandra Hirche is Fellow of the IEEE and received the IEEE Control System Society Distinguished Member Award.

KEY INNOVATOR 5 – Sami Haddadin (Neue Aula, 9:50 – 10:20)

Title: **Human-aware robots and prosthetics**

Bio: Sami Haddadin is founder and Executive Director of the Munich Institute of Robotics and Machine Intelligence (MIRMI) at TUM. His research deals with the fundamentals of robotics and AI for creating intelligent machines. He received degrees in EE, CS and Technology Management from TUM and LMU and a doctorate from RWTH Aachen. He was a research scientist at the DLR and Professor at Leibniz University Hannover. He is chairman of the Bavarian AI Council and recipient of the German President's Award for Innovation and Leibniz Prize.

PARALLEL ORAL SESSIONS MORNING

Morning ORAL Sessions (10:50 – 12:05): Parallel oral sessions (talks: 10 min + 2 min Q&A).

[Exoskeletons and exosuits] EE-MO4 – Room HS 4 ***Chair: David Remy, Co-Chair: Lorenzo Masia***		
131	Afschrift, Maarten; Van Asseldonk, Edwin; van Mierlo, Michelle; Van der Kooij, Herman; De Groote, Friedl	Assisting global balance recovery responses during perturbed walking with ankle exoskeletons
152	Moreno Franco, Olmo Alonso; Parameswari Neelakandan, Raajshekhar; Di Natali, Christian; Caldwell, Darwin G.; Ortiz, Jesus	Task Assessment of XoNLI: A Natural Language Interface for Occupational Exoskeletons
260	Zhao, Qingya; Deepak, Rohan; Gebre, Biruk; Nolan J., Karen; Pochiraju, Kishore; Zanotto, Damiano	Gaussian Process Regression Models for On-line Ankle Moment Estimation in Exoskeleton-Assisted Walking
272	Eken, Huseyin; Livolsi, Chiara; Pergolini, Andrea; Penna, Michele Francesco; Hamoui, Giovanni; Gruppioni, Emanuele; Trigili, Emilio; Crea, Simona; Vitiello, Nicola	Continuous Gait Phase Estimation and Torque Profile Generation using adaptive Dynamic Movement Primitives for Able-Bodied Individuals and Stroke Survivors
295	Kuperus, Hannah; Tian, Yucheng; Burke, Katherine; Gillespie, Lincoln; Kemp, Stephen; Gillespie, Brent	Design and Implementation of a Triggered Response Experiment and Backdrivable Rodent Exoskeleton
308	Zhao, Susan; Walters, Katharine; Montes-Perez, Jose; Gregg, Robert D.	Design and Validation of a Modular, Backdrivable Ankle Exoskeleton

[Neural control of movement and biomechanics] NC-MO4 – Room HS 1
Chair: Laura Marchal-Crespo, Co-Chair: Tom Verstraten

70	Zhang, Haocheng; Kizyte, Asta; Wang, Ruoli	Ankle Torque Estimation Using HD-EMG Driven CNN-LSTM Model and Data Augmentation
156	Denayer, Menthy; Onal, Pinar; Turcksin, Tom; Verstraten, Tom	Comparison of OpenSim and BoB Musculoskeletal Simulation Engines for Overhead and Lifting Task
168	Alizadehsaravi, Leila; Draukšas, Simonas; K. Moore, Jason; Happee, Riender; Marchal-Crespo, Laura	Enhancing Motor Learning in Cycling Tasks: The Role of Model Predictive Control and Training Sequence
251	Gionfrida, Letizia; Kim, Daekyum; Jin, Yichu; Walsh, Conor James; Howe, Robert D.	Muscle architecture parameters inferred from simulated single element ultrasound traces
271	Jakubowski, Kristen; Sawicki, Gregory; Ting, Lena	Center of mass kinematics robustly predict multidirectional reactive joint torques during perturbed standing
290	Giovannetti, Giorgia; Noccaro, Alessia; Buscaglione, Silvia; Formica, Domenico	Estimation of passive wrist stiffness across two coupled degrees of freedom using a kinematic model of the human wrist

[Surgical and medical robotics] SR-MO4 – Room HS 5
Chair: Leonardo Ricotti, Co-Chair: Patricia Capsi Morales

264	Neidhardt, Maximilian; Mieling, Robin; Latus, Sarah; Fischer, Martin; Maurer, Tobias; Schlaefer, Alexander	A Modified da Vinci Surgical Instrument for OCE based Elasticity Estimation with Deep Learning
286	Kim, Sooyeon; Yu, Sujin; Lim, Yuri; Lee, Suhyun; Ryu, Seok Chang	Feasibility Study of a Teleoperation System with Haptics for Tip-force Sensing Active Needles

301	Oh, Ki-Hwan; Borgioli, Leonardo; Zefran, Milos; Chen, Liaohai; Giulianotti, Pier Cristoforo	A Framework For Automated Dissection Along Tissue Boundary
335	Guarnera, Daniele; Restaino, Francesco; Vannozzi, Lorenzo; Trucco, Diego; Mazzocchi, Tommaso; Lisignoli, Gina; Zaffagnini, Stefano; Russo, Alessandro; Ricotti, Leonardo	In situ extrusion of biomaterials through an arthroscopic tool: characterization and numerical analyses
358	Dimas, George; Kalozoumis, Panagiotis; Vartholomeos, Panagiotis; Iakovidis, Dimitris	Image-Based Path-Planning for Navigation of Soft-Growing Robots in the Spinal Sub-Arachnoid Space

[Rehabilitation robotics] RR-MO4 – Room HS 6
Chair: Hermano Igo Krebs, Co-Chair: Juan C Moreno

137	Rominger, Julius; Buatier de Mongeot, Lucia; Boehm, Jacob; Lieb, Anne; Baur, David; Ziemann, Ulf; Masia, Lorenzo; Haeufle, Daniel Florian Benedict	Supporting functional tasks in bi-manual robotic mirror therapy by coupling upper limb movements based on virtual reality
169	Tamai, Hayato; Sankai, Yoshiyuki; Uehara, Akira; Kawamoto, Hiroaki	The Development of Anorectal and Core Activation Method with Wearable Cyborg HAL for Defecation Disorder Treatment
208	Cherubini, Agnese; Sánchez del Valle, Clara; Sanz-Morère, Clara Beatriz; Herranz-Calero, Eloisa; De Eusebio Rubio, Elena; Gonzalez, Sara; HERRERA VALENZUELA, DIANA SOFIA; del-Ama, Antonio J.; Borromeo, Susana; Soto León, Vanesa; Oliviero, Antonio; Gil-Agudo, Angel; León, Natacha; Torricelli, Diego; Tornero, Jesús; Moreno, Juan C.	Multi-level characterization of the recovery process of a stroke survivor after 2 months of robotic therapy with the Walkbot robot

117	Zhao, Peijun; Krebs, Hermano Igo	Enabling Home Rehabilitation with Smartphone-Powered Upper Limb Training
316	Waters, Erica; Mendonca, Rochelle; Cacchione, Pamela; Johnson, Michelle J.	Towards Multi-User Robot-Based Stroke Rehabilitation: The Influence of Relative Partner Skill on Motor Learning
164	Lee, Seong-Hoon; Song, Won-Kyung	Bilateral Arm Movement Enhancement: Robotic Error Augmentation Insights from Stroke and Able-Bodied Participants

[Human-machine interaction and assistive robotics] HM-MO4 – Room HS 7

Chair: Arash Arami, Co-Chair: Brokoslaw Laschowski

151	Wu, Rui; Gholami, Soheil; Bonato, Tristan; Munier, Louis; Billard, Aude	Transferring Shotcrete Skills to Robots
283	Das, Neha; Endo, Satoshi; Kavianirad, Hossein; Hirche, Sandra	Framework for Learning a Hand Intent Recognition Model from sEMG for FES-based control
370	Lu, zhijing; Ashok, Ashita; Berns, Karsten	RoboReID: Audio-Visual Person Re-Identification by Social Robot
5	Shushtari, Mohammad; Arami, Arash	Human-Exoskeleton Disagreement Resolution Through Interaction Torque Minimization: Experimental Results
65	Hobbs, Bradley; Artemiadis, Panagiotis	Intentional Increases in Push-off Force Coupled With Visual Feedback: Towards New Strategies in Robot-Assisted Gait Rehabilitation
254	Seiler, Julian; Schäfer, Niklas; Latsch, Bastian; Zhao, Guoping; Grimmer, Martin; Beckerle, Philipp; Kupnik, Mario	Human-Exoskeleton Interaction Force Estimation Based on Quasi-Direct Drive Actuators

[IEEE TMRB Session] TMRB-MO4 – Room HS 9 ***Chair: Leonardo Cappello, Co-Chair: Daniele Guarnera***	
Zimmermann, Yves Dominic; Georgarakis, Anna-Maria; Wolf, Peter; Hutter, Marco; Riener, Robert	Supporting and Stabilizing the Scapulohumeral Rhythm with a Body- or Robot-Powered Orthosis
Nuesslein, Christoph; Bhakta, Krishan; Fernandez, Joshua; Davenport, Felicia; Leestma, Jennifer; Kim, Raymond; Lee, Dawit; Mazumdar, Anirban; Sawicki, Gregory; Young, Aaron	Comparing Metabolic Cost and Muscle Activation for Lower-Body Exoskeletons Across Lifting Tasks
Laschowski, Brokoslaw; Kurbis, Andrew; Mihailidis, Alex	Development and Mobile Deployment of a Vision-Based Automated Stair Recognition System
Tamantini, Christian; Cordella, Francesca; Tagliamonte, Nevio Luigi; Pecoraro, Ilenia; Pisotta, Iolanda; Bigioni, Alessandra; Tamburella, Federica; Lorusso, Matteo; Molinari, Marco; Zollo, Loredana	A Data-Driven Fuzzy Logic Method for Psychophysiological Assessment: an Application to Exoskeleton-Assisted Walking
Paternò, Linda; Filosa, Mariangela; Anselmino, Eugenio; Cecere, Alessio; Dell'Agnello, Filippo; Gruppioni, Emanuele; Mazzoni, Alberto; Micera, Silvestro; Oddo, Calogero; Menciassi, Arianna	Soft transfemoral prosthetic socket with EMG sensing and augmenting feedback: a case study
Trejos, Ana Luisa; Zhou, Yue; Daemi, Parisa; Jenkins, Mary; Naish, Michael	Assessment of a Fault-Tolerant Control-based Wearable Tremor Suppression Glove under Faults and Disturbances
Mastinu, Enzo; Coletti, Anna; van den Berg, Jasper; Cipriani, Christian	Explorations of autonomous prosthetic grasping via proximity vision and deep learning

PARALLEL ORAL SESSIONS AFTERNOON

Afternoon ORAL Sessions (13:30 – 14:45): Parallel oral sessions (talks: 10 min + 2 min Q&A).

[Exoskeletons and exosuits - 1] EE1-AF4 – Room HS 4 ***Chair: Tommaso Lenzi, Co-Chair: Letizia Gionfrida***		
317	Anchivilca Baltazar, Alex; Hannol von Snarski, Benjamin; Amin, Nilp; Lai, Joshua; Fong, Justin; Shirota, Camila; Melendez-Calderon, Alejandro	Trajectory-based assist-as-needed control on an overground robotic exoskeleton: a preliminary study
324	Grilo Gouveia, João Pedro; Carvalho, Manuel Herculano; Kooij, H van der; Martins, Jorge	Control Strategy With Intra-Step Adaptation for Functional Electrical Stimulation Based Ankle-Foot Orthosis for Drop Foot
328	Dragusanu, Mihai; Troisi, Danilo; Prattichizzo, Domenico; Malvezzi, Monica	Assessing adaptability properties of a compact wearable hand exoskeleton
253	Archangeli, Dante; Ortolano, Brendon; Murray, Rosemarie; Gabert, Lukas; Lenzi, Tommaso	Design and Evaluation of a Powered Hip Exoskeleton for Frontal and Sagittal Plane Assistance
383	Lhoste, Clément; Kucuktabak, Emek Baris; Vianello, Lorenzo; Amato, Lorenzo; Short, Matthew; Lynch, Kevin; Pons, Jose L.	Deep-Learning Estimation of Weight Distribution Using Joint Kinematics for Lower-Limb Exoskeleton Control
369	Shukla, Manish; Franco, Leonardo; Prattichizzo, Domenico; Salvietti, Gionata	Enhancing Grasping Capabilities in Stroke Patients through a Novel Mechanical Design of the Robotic SixthFinger

[Exoskeletons and exosuits - 2] EE2-AF4 – Room HS 1 *Chair: Claudio Castellini, Co-Chair: Enzo Mastinu*		
263	Blanco-Diaz, Cristian Felipe; Cappello, Leonardo	Identifying Key Hand Joints in Grasping Tasks for Wearable Applications
135	Olenšek, Andrej; Zadravec, Matjaz; Tomc, Matej; Matjacic, Zlatko	A Novel Mechanism and Method for Application of Force Impulses in Cable-based Rehabilitation Systems
255	Weber, Nico; Walter, Jonas; Braun, Dominik; Del Vecchio, Alessandro; Franke, Jörg	Compact and Lightweight Cable Decoupling Unit for Bio-Inspired Tendon Drives in Wearable Robots
85	Masiero, Federico; Ianniciello, Valerio; Raeli, Roberto; Sinibaldi, Edoardo; Masia, Lorenzo; Cipriani, Christian	Accurate Motion Detection via Magnetic Tracking for Wearable Technologies
59	Angelidou, Charikleia; Artemiadis, Panagiotis	Reducing Complexity, Enhancing Precision: Predicting Compliant Surface Transitions in Walking via Neighborhood Component Analysis
367	Verburg, Tim; Joshi, Sagar; Seth, Ajay; Della Santina, Cosimo	Development of a Variable Stiffness Mechanism with a Linear Output for Exosuit Integration

[Neural control of movement and biomechanics] NC-AF4 – Room HS 5 *Chair: Damiano Zanotto, Co-Chair: Linda Patternò*		
291	Boehm, Jacob; Rominger, Julius; Buatier de Mongeot, Lucia; Masia, Lorenzo	Simulation of an Online Estimation Algorithm for Time-Dependent Kinematic Synergies: Towards Synergy Shaping

293	Cohen, Hannah; Vásquez, Miguel; Sergi, Fabrizio	Estimating Propulsion Kinetics in Absence of a Direct Measurement of the Anterior Component of Ground Reaction Force
320	Arens, Philipp; Quirk, David; Walsh, Conor James	Deep-Learning Based Lumbar Moment Estimation during Exosuit Augmented Lifting with Variable Loading Conditions
179	West Jr., A. Michael; Tessari, Federico; Wang, Margaret; Hogan, Neville	The Study of Dexterous Hand Manipulation: A Synergy-Based Complexity Index
188	Moura Coelho, Rui; Oliveira, João P.; Krebs, Hermano Igo; Martins, Jorge	Ankle Impedance in Healthy subjects at different walking speeds
190	Forenzo, Dylan; He, Bin	Online Robotic Arm Control with a Deep Learning-based EEG BCI

[Surgical and medical robotics] SR-AF4 – Room HS 6
Chair: Fabien Vérité, Co-Chair: Francesco Missiroli

381	Mazidi, Aiden; C. Ramos, Andres; Sayadi, Amir; Dargahi, Javad; Barralet, Jake; Feldman, Liane; Hooshiar, Amir	Nonlinear Impedance Matching Approach (NIMA) for Robust Haptic Rendering during Robotic Laparoscopy Surgery
220	Saudrais, Charlélie; da Silva, Doris; Bayle, Bernard; Vitrani, Marie-Aude; Vérité, Fabien	Performance of Skin Stretch Haptic Feedback Augmentation for Laparoscopic Surgery in a Realistic Palpation Task
229	Morfino, Rosaura; Lauretti, Clemente; Cordella, Francesca; Zollo, Loredana	A hybrid position/force control for robot-aided pedicle tapping in spinal surgery
322	Bamoriya, Shailesh; gedam, vidit; Kumar, Cheruvu Siva	3D Manipulation of 6DOF Tendon Driven Continuum Robot for Surgical Applications

366	Katragadda, Sandeep; de Souza, Kevin	Machine learning-based automatic implant size prediction from CT images in total knee arthroplasty
321	Marahrens, Nils; Jones, Dominic; Stevenson, Jack; McLaughlan, James; Biyani, Chandra Shekhar; Lucas, Margaret; Valdastri, Pietro	Enabling Autonomous Ultrasound-Guided Tumor Ablation during Robotic Surgery

[Bionic prostheses] BP-AF4 – Room HS 7

Chair: Jarrassé, Nathanael, Co-Chair: Cristina Piazza

74	Campanelli, Andrea; Saudrais, Charlélie; Mick, Sébastien; Tiboni, Monica; Vérité, Fabien; Jarrassé, Nathanael	Assessment of Multi Vibrotactile-Skin Stretch (MuViSS) Haptic Device to restore sensory feedback in upper limb amputees using prosthetics
90	Xie, Anran; Zhang, Zhuozhi; Zhang, Jie; Li, Tie; Patton, James; Lan, Ning	Slip Sensor Driven Closed-Loop Control of Grip Force with a Neuromorphic Prosthetic Hand
92	Fang, Yun; Wu, Yujun; Guo, Weichao; Sheng, Xinjun	Bionic Vibrotactile Feedback for Stiffness Recognition Towards the Pinch of a Prosthetic Hand
110	Mazzarini, Alessandro; Fagioli, Ilaria; Baldoni, Andrea; Dell'Agnello, Filippo; Gruppioni, Emanuele; Trigili, Emilio; Crea, Simona; Vitiello, Nicola	A Robotic Ankle-Foot Prosthesis Based on Torsional Series and Parallel Elasticity
148	Dawson, Michael R.; Parker, Adam; Williams, Heather E.; Shehata, Ahmed W.; Hebert, Jacqueline; Chapman, Craig; Pilarski, Patrick M.	Joint Action is a Framework for Understanding Partnerships Between Humans and Upper Limb Prostheses

377	Simon, Ann; Anarwala, Shawana; Abdou, Kayan; Hargrove, Levi	Improving Device Testing Efficiency in Prosthetic Research: The Impact of an Automated Robustness Testing Protocol

PLENARY SPEAKER 6 – Ellen Roche (Neue Aula, 15:15 – 16:05)

Title: **Using soft robotics to augment and replicate cardiac mechanics**

Bio: Ellen Roche is the Latham Family Career Development Professor at the Department of Mechanical Engineering and the Institute for Medical Engineering and Science at MIT. She directs the Therapeutic Technology Design and Development Lab. Her research focuses on applying innovative technologies to the development of cardiac devices. Her research includes development of novel devices to repair or augment cardiac function using disruptive approaches such as soft robotics. Her work has been published in Nature Biomedical Engineering, Science Translational Medicine, Science Robotics, Advanced Materials among others. She is the recipient of multiple awards including the Wellcome Trust Seed Award in Science, a National Science Foundation CAREER Award, an NIH Trailblazer Award, a Hood Award for Excellence in Child Health Research, the LabCentral Ignite Golden Ticket and the inaugural Future Founders Grand Prize.

POSTER SESSION 3

Afternoon Poster Sessions (16:05 – 17:30).

Panel	ID	Authors	Title
1	211	Weiss, Alexander; Chen, Anthony; Janischowsky, Daniel; Shih, Isabella; Phillips, Gillian; Selinger, Jessica; Koelewijn, Anne	Pairing Predictive Simulations and Human Experiments in Ankle Exoskeleton Walking
2	240	Legrand-Lestoille, Mathilde; Magrini, Céline; Branscheidt, Meret; Luft, Andreas; Gassert, Roger; Lambercy, Olivier; Awai Easthope, Chris	Augmented feedback to influence gait symmetry: a feasibility study to quantify effects on the global gait pattern
3	248	Alizadeh Noghani, Mohsen; Bolívar-Nieto, Edgar	Prediction of Whole-Body Center of Mass using Joint Angles and Ground Reaction Forces: A Framework for Human Intent Prediction
4	298	Kurshakov, Georgii; Maffia, Andrea; Cosso, Tiziano; Chiostri, Renzo; Sanguineti, Vittorio; Delzanno, Giorgio	Loosely-Coupled GNSS/INS Integration for Foot Trajectory Reconstruction in Outdoor Environments
5	364	Sierotowicz, Marek	Empirical time complexity analysis of tractrix-based inverse kinematics algorithms
6	371	Orhan, Aymeric; Verdel, Dorian; Bruneau, Olivier; Geffard, Franck; Berret, Bastien	Combining Model-based and Data-based approaches for online predictions of human trajectories
7	373	Nabipour, Mahdi; Sawicki, Gregory; Sartori, Massimo	Predictive closed-loop control of muscle tendon force: towards a framework for human locomotion

8	72	Angie, Pino; Barria, Patricio; Baleta, Karim; Aguilar, Rolando; Azorin, Jose M.; Munera, Marcela; Cifuentes, Carlos A.	Transcranial Direct Current Stimulation Associated with Visual and Auditory Cueing during Gait Training: A Case Study with a Parkinson' s Disease Patient
9	172	Lu, Junyu; Modan, Amir; Lin, Zhenyu; Hughes, Charmayne; Zhang, Xiaorong; Qin, Zhuwei	mMyoHMI: Real-time EMG-based Pattern Recognition with On-device Learning Adaptation
10	379	Nguyen, Anh; Anand, Ajay; Johnson, Michelle J.	Exploring EEG Responses during Observation of Actions Performed by Human Actor and Humanoid Robot
11	97	Otalora, Sophia; Moreno, Hector Alonso; Munera, Marcela; Cifuentes, Carlos A.	Variable Stiffness Hip Joint for Lower-limb Exoskeletons
12	239	Massone, Valentina; Mannella, Kailynn; Albanese, Giulia Aurora; Casadio, Maura; Zenzeri, Jacopo; Holmes, Michael	Feasibility of an Adaptive Upper Limb Robotic Training Protocol for Persons with Multiple Sclerosis
13	91	Mukherjee, Ankita; Alvarez, Helena; Zhang, Xiaorong; Qin, Zhuwei; Hughes, Charmayne	DRome: A Deep Learning-based Mobile Vision System for Real-time Range of Motion Evaluation
14	244	Jonna, Prashanth; Madurwar, Anshul; B K, Aamod; Rao, Madhav	Effective Limb Rehabilitation: A Cost-Efficient Holonomic Drive-Based Robotic System for Optimal Joint Mobilization
15	294	Moon, James Hyungsup; Hwang, Yeji; Kim, Jonghyun	A Simulation Study on Individualized Reaching Training Framework using Model-based Evaluation for Stroke
16	158	Murali, Barathwaj; Weir, Richard	Towards a minimal-delay myoelectric control signal using thresholded surface EMG

17	222	Shahabian Alashti, Mohamad Reza; Bamorovat Abadi, Mohammad Hossein; Holthaus, Patrick; Menon, Catherine; Amirabdollahian, Farshid	Efficient Skeleton-based Human Activity Recognition in Ambient Assisted Living Scenarios with Multi-view CNN
18	382	Bharadwaj, Varun; Miller, Benjamin; Novak, Vesna; Jiang, Chao	Learning Skill Training Schedules from Domain Experts in a Rehabilitation Gym using Inverse Reinforcement Learning
19	304	Chishty, Haider; Sergi, Fabrizio	A Multi-objective Simulation-Optimization Framework for the Design of a Compliant Gravity Balancing Orthosis
20	141	Devittori, Giada; Akeddar, Mehdi; Retevoi, Alexandra; Schneider, Fabian; Cvetkova, Viktoria; Dinacci, Daria; Califfi, Antonella; Rossi, Paolo; Petrillo, Claudio; Kowatsch, Tobias; Lambercy, Olivier	Towards RehabCoach: Design and Preliminary Evaluation of a Conversational Agent Supporting Unsupervised Therapy after Stroke
21	147	Hailey, Rhet Osborne; Commander, Jon; Denney, Thomas; Zabala, Michael; Burch, Thomas; Rose, Chad	Tri-Modal Intervention for Diabetic Peripheral Neuropathy: Pilot Study
22	207	Privitera, Luigi; Lassi, Michael; Dalise, Stefania; Azzollini, Valentina; Vercillo, Fulvio; Maggiani, Luca; Mazzoni, Alberto; Chisari, Carmelo; Micera, Silvestro; Bandini, Andrea	Automatic prediction of upper limb motor recovery in stroke patients undergoing robotic therapy
23	236	Shi, Shuyang; Gassert, Roger	Development and Evaluation of A 3D-Printed Pneumatic Light Massage Device to Relieve Neuropathic Foot Pain

24	296	Nagiller, Marco; Winkler, Simon; Kim, Yeongmi	Portable hand rehabilitation device for patients with neurological disorders
25	375	Díaz Pinilla, María Alejandra; De Bock, Sander; Ali Mohamadi, Parham Haji; Langlois, Kevin; De Winter, Joris; Verstraten, Tom; De Pauw, Kevin	Assessing the Influence of Robot-Assisted Rehabilitation through Muscle Synergies Similarities
26	55	Luciani, Beatrice; Costante, Simone; Braghin, Francesco; Pedrocchi, Alessandra; Gandolla, Marta	Imitation learning using Gaussian mixture models and Dynamic Movement Primitives for rehabilitation exoskeletons: a comparison
27	323	Wannawas, Nat; Diaz-Pintado, Clara; Narayan, Jyotindra; Faisal, Aldo	Accessible FES Cycling: Leveraging Cost-Effective Crank Angle Measurement and Reinforcement Learning for Stimulation Optimization
28	351	Ting, Jonathan; Basyal, Sujata; Mishra, Kislaya; Rose, Chad; Allen, Brendon	Essential Tremor Severity Classification using a Multi-layer Perceptron and the TETRAS Scale
29	64	Hobbs, Bradley; Artemiadis, Panagiotis	Virtual Reality-based Robot-Assisted Method for Gait Training Showing Retention of Anticipatory Motor Responses
30	226	Siciliano, André; Dib, Ana Emília Hernandes; Luna, Felipe Drebtchinsky Lima; Moura, Rafael T; Forner-Cordero, Arturo	Design, manufacturing and testing of ARMS: a modular and portable upper limb rehabilitation robot

31	359	ChoeEunbin, Eunbin; Moon, Junyoung; Ryu, Jae Wook; Yang, Seung Tae; Lee, Giuk	Active Variable Compression Shoes: Design and Evaluation of External Ankle Support to Prevent Ankle Sprain via Active Compression Mechanism
32	176	Allen, Ben; Garrad, Martin; Cifuentes, Carlos A.	SOFT Glove
33	282	Koike, Amy; Lin, Keng-Yu; Mutlu, Bilge; Wehner, Michael	Sprout: Fiber Patterns in Soft Actuators Create Expressions in Social Robots
34	153	Davoodi, Ayoob; Li, Ruixuan; Van Assche, Kaat; Timmermans, Maikel; Tummers, Matthias; Borghesan, Gianni; Denis, Kathleen; Vander Poorten, Emmanuel B	All-UltraSound-Guided Path Planning for Robotic Pedicle Screw Placement
35	143	Carlini, Luca; Bicchi, Anna; Fu, Junling; De Momi, Elena	Towards Robotic Transseptal Puncture: A Preliminary Study Investigating the Influence of Puncture Velocity in Minimally Invasive Cardiovascular Surgery
36	289	Cordon, Ana; Selim, Mostafa; Abayazid, Momen	Integration of Respiratory Motion Compensation and Haptic Feedback for CT-Guided Teleoperated Robotic Needle Insertion
37	170	De Groot, Antonius Gerardus; Welleweerd, Marcel Klaas; Cornel, Erik Bastiaan; Stramigioli, Stefano; Siepel, Françoise J	Computational Design Optimization of Concentric Tube Robots for Patient-Specific Volumes and End Effector Tasks

38	262	Ouyang, Jingyu; Egle, Fabio Andre; Igney, Claudia; Mutzke, Thomas; Dahmani, Chiheb; Castellini, Claudio; Thuerauf, Sabine	C-arm unleashed: Intuitive inter-operative positioning of C-arms using wearable gesture detection
39	391	Kasman, Michael; Cui, Eric; Majewicz Fey, Ann	A Bio-Inspired Tendon-Driven Continuum Robot for Treatment of Twin-to-Twin Transfusion Syndrome