Poster Session 1-1	
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[MoP1-1.1]

Sensorless Impedance Control for the TWIN Lower Limb Exoskeleton: A Preliminary Study

Alessia Sacchini, Federico Tessari, Christian Vassallo, Stefano Maludrottu, Elena De Momi, Matteo Laffranchi, and Lorenzo De Michieli

[MoP1-1.2]

Walking and Standing with an Exoskeleton for the Lower Limbs: Effects of Mass and Inertia on Gait and Postural Control

Pedro Parik-Americano, João Pedro Pinho, Fabia Camile dos Santos, Camila Taira, Guilherme Silva Umemura, and Arturo Forner-Cordero

[MoP1-1.3]

Motor Performance Index for Evaluation of Distributed Pattern in Multi-Channel EEG

Hojun Jeong and Jonghyun Kim

[MoP1-1.4]

Development of a Soft Inflatable Exosuit for Knee Flexion Assistance

Ibrahim Mohammed Hasan, Emiliano Quinones Yumbla, and Wenlong Zhang

[MoP1-1.5]

Model-Based Control for Gait Assistance in the Frontal Plane

Vahid Firouzi, Omid Mohseni, and Maziar A. Sharbafi

[MoP1-1.6]

Modeling and Characterization of 3D Printed Flexible Mesh Structure for Wearable Interface

Binghao Lu, Jirui Fu, Saba M. Hosseini, and Joon-Hyuk Park

[MoP1-1.7]

Soft Tactile SkIn: Tactile Sensor System to Soften Robots

Taiki Majima and Kazunori Takashio

[MoP1-1.8]

A Hybrid Swing-Assistive Electro-Hydrostatic Bionic Knee Design

Marco Puliti, Federico Tessari, Renato Galluzzi, Simone Traverso, Andrea Tonoli, Lorenzo De Michieli, and Matteo Laffranchi

[MoP1-1.9]

Travelling Wave Locomotion of a Tensegrity Robotic Snake based on Self-Excitation Controllers

Xin Li, Jingfeng He, and Alexandre Pitti

[MoP1-1.10]

Design and Control of a Variable Buoyancy Module for a Serial ROV

Santiago Noriega and Hernando Leon-Rodriguez

[MoP1-1.11]

Comparison of In-Home Robotic Companion Pet Use in South Korea and the United States: A Case Study

Casey C. Bennett, Cedomir Stanojevic, Seongcheol Kim, Selma Sabanovic, Jinjae Lee, Jennifer A. Piatt, Janghoon Yu, and Jiyeong Oh

[MoP1-1.12]

Stairs and Ramps Ascent and Descent: How to Design Feasible Gait Patterns for a Powered Lower-Limb Exoskeleton

Christian Vassallo, Gaia Zinni, Stefano Maludrottu, Matteo Laffranchi, and Lorenzo De Michieli

[MoP1-1.13]

Evaluation of the User Command Interface, an Adaptable Setup System for Industrial Exoskeletons

Olmo A. Moreno Franco, Jesus Ortiz, and Darwin G. Caldwell

[MoP1-1.14]

A Magnetically-Controlled 3D-Printed Helical Microrobot for Application in Photothermal Treatment of Cancer Cells

Van Du Nguyen, Kim Tien Nguyen, Shirong Zheng, Chang-Sei Kim, Byungjeon Kang, Doyeon Bang, Jong-Oh Park, and Eunpyo Choi

[MoP1-1.15]

Design of a Force Sensing Needle Guide for an MRI-Compatible Robotic Prostate Biopsy System

Rongrong Liu and Seong Young Ko

[MoP1-1.16]

Evaluation of Haptic Interaction in Mirror Game by a Cerebellum Inspired Virtual Player

Önay Karaca, Amr Okasha, Atacan Duman, Umut Candan, and Kutluk B. Arıkan

[MoP1-1.17]

Proportional Control of a Soft Cable-Driven Exoskeleton via a Myoelectrical Interface Enables Force-Controlled Finger Motions

Jonas Walter, Paul Roßmanith, Daniela Souza de Oliveira, Sebastian Reitelshöfer, Alessandro Del Vecchio, and Jorg Franke

[MoP1-1.18]

Electromyography-Based, Robust Hand Motion Classification Employing Temporal Multi-Channel Vision Transformers

Ricardo V. Godoy, Gustavo J. G. Lahr, Anany Dwivedi, Tharik J. S. Reis, Paulo H. Polegato, Marcelo Becker, Glauco A. P. Caurin, and Minas Liarokapis

Poster Session 1-2	
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[MoP1-2.1]

Experimental Evaluation of a Stiffness-Fault-Tolerant Control Strategy on an Elastic Actuator for Wearable Robotics

Rodrigo J. Velasco-Guillen, Victor Grosu, Bram Vanderborght, Josep M. Font-Llagunes, and Philipp Beckerle

[MoP1-2.2]

A Unity-Based Da Vinci Robot Simulator for Surgical Training

Ke Fan, Aldo Marzullo, Nicolò Pasini, Alberto Rota, Matteo Pecorella, Giancarlo Ferrigno, and Elena De Momi

[MoP1-2.3]

CNN-Based Controller for Multi-DoF Prosthetic Wrist using sEMG Data during Activities of Daily Living

Mohamed Fazil, Zixia Meng, and Jiyeon Kang

[MoP1-2.4]

Paralinguistic Cues in Speech to Adapt Robot Behavior in Human-Robot Interaction

Ashita Ashok, Jakub Pawlak, Sarwar Paplu, Zuhair Zafar, and Karsten Berns

[MoP1-2.5]

3D Phononic Crystal-Based pH Sensor Advanced with Machine Learning

Syed Muhammad Anas Ibrahim, Zhang Fang, Jaehyun Kim, and Jungyul Park

[MoP1-2.6]

Stress Detection of Children with Autism using Physiological Signals in Kaspar Robot-Based Intervention Studies

Buket Coşkun, Pinar Uluer, Elif Toprak, Duygun Erol Barkana, Hatice Kose, Tatjana Zorcec, Ben Robins, and Agnieszka Landowska

[MoP1-2.7]

Admittance Control of Wearable Robotic Brace for Dynamic Trunk Support

Xingzhao Guo, Zhihao Zhou, and Qining Wang

[MoP1-2.8]

Passive Exosuit Emulator for Material Handling Applications

Siddharth Bhardwaj, Akshayraj B. Shinde, Randheer Singh, and Vineet Vashista

[MoP1-2.9]

Six-DOF Localization using Magnetic Induction Effect for Automated Locomotion of an Active Capsule Endoscope

Manh Cuong Hoang, Jayoung Kim, Jong-Oh Park, and Chang-Sei Kim

[MoP1-2.10]

RobHeart: Soft Robot for Heart-Like Volumetric Stress on Seeded Cardiac Cells

Alberto Villani, Giulio Ciucci, Andrea Colliva, Sara Marullo, Serena Zacchigna, and Domenico Prattichizzo

[MoP1-2.11]

A Multiscale Approach for Evaluating the Effects of Focused Ultrasound Sensory Stimulation on the Central Nervous System in Prosthetics

Alessia Scarpelli, Mattia Stefano, Francesca Cordella, and Loredana Zollo

[MoP1-2.13]

Wearable Elastic Networks for Customized Multijoint Torque Fields

Partha Ryali, Beatrice Malizia, Courtney Celian, Tommaso Carella, Daniel McDermed, Rohith Erukulla, and James L. Patton

[MoP1-2.14]

Assessing Changes in Human Gait with a Mobile Tethered Pelvic Assist Device (mTPAD) in Transparent Mode with Hand Holding Conditions

Danielle M. Stramel and Sunil K. Agrawal

[MoP1-2.15]

Development of a Compliant Joint Based Upper Limb Exoskeleton for Stable Tele Manipulation: CJ EXO

Bhivraj Suthar, Zubair Mohd, Sachin Kansal, and Sudipto Mukherjee

[MoP1-2.16]

Design of Pediatric Robot to Simulate Infant Biomechanics for Neuro-Developmental Assessment in a Sensorized Gym

Jal Panchal, O. Francis Sowande, Laura Prosser, and Michelle J. Johnson

[MoP1-2.17]

Fiber-Bragg-Grating Based Force Sensor with Dual Structure for Minimally Invasive Surgery

Jeongwon Lee and Sungwook Yang

Poster Session 2-1	
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[TuP2-1.1]

Towards Efficient Lower-Limb Exoskeleton Evaluation: Defining Biomechanical Metrics to Quantify Assisted Gait Familiarization

Giorgos Marinou, Lizeth Sloot, and Katja Mombaur

[TuP2-1.2]

Haptic Touch: A Retrofittable Tactile Sensing Glove and Haptic Feedback Armband for Scalable and Robust Sensory Feedback

Aidan Aug, Ariel Slepyan, Eli Levenshus, and Nitish Thakor

[TuP2-1.3]

A Portable Passive Clutch System for Selective Upper Extremity Movements

Jisu Jeong, Yoonjin Kim, Yeonha Cho, and Youngjin Na

[TuP2-1.4]

Learning Whole-Body Effects for Biomechanics Analysis from Partial IMU Sensing

Kazuya Tomabechi, Yosuke Ikegami, Ko Yamamoto, and Yoshihiko Nakamura

[TuP2-1.5]

A Pilot Study on Perception of Direction Cues Delivered using a Portable Electro-Tactile Biofeedback Device

Junyeong Lee, Hosu Lee, Amre Eizad, and Jungwon Yoon

[TuP2-1.6]

Delay Time of Human Motion Generation in Response to Changing Periods in Force Tracking Task

Kazuki Yane, Hermano Igo Krebs, and Takahiro Nozaki

[TuP2-1.7]

The Electromagnetic Manipulation System Development for Sorting Circulating Tumor Cells

Kyoungin Kang, Cheol Sang Kim, and Chan Hee Park

[TuP2-1.8]

Benchmarking the Effects of Lower Limb Exoskeletons on Whole-Body Manipulation Tasks: Testbed, Protocols and Metrics

Yaiza Benito Molpeceres, Guillermo Asín-Prieto, Juan C. García Orden, David Rodriguez-Cianca, Jesús Tornero, Diego Torricelli

[TuP2-1.9]

Sound Source Localization through Shape Reconfiguration in a Snake Robot

Sriranjan Rasakatla, Kazuki Sekine, Hijiri Akahane, Bipin Indurkhya, and Ikuo Mizuuchi

[TuP2-1.10]

Haptic Feedback Interface based on Cascade Admittance-Impedance Controller

Icaro Ostan and Adriano Almeida Gonçalves Siqueira

[TuP2-1.11]

Ultrasound-Mediated Delivery of Natural Killer Cells with Microbubble for Cancer Treatment

Hyeong-Woo Song, Ho Yong Kim, Han-Sol Lee, Daewon Jung, You Hee Choi, Chang-Sei Kim, Doyeon Bang, Byungjeon Kang, Jong-Oh Park, and Eunpyo Choi

[TuP2-1.13]

Integration of Magnetic Particle Imaging in Anisotropic Navigation Platform for Tracking of Magnetic Nanoparticles

Kim Tien Nguyen, Minh Phu Bui, Tuan-Anh Le, Van Du Nguyen, Jayoung Kim, Jungwon Yoon, Jong-Oh Park, and Chang-Sei Kim

[TuP2-1.14]

Modeling and Design of Soft, Positive-Pressure Actuated Suction Cups for Anchoring in Minimally Invasive Surgery

Ayush Giri, Cédric Girerd, Xiaolei Luo, Ryan Broderick, and Tania K. Morimoto

[TuP2-1.15]

Nonlinear Contact Modeling and Haptic Characterization of the Ovine Cervical Intervertebral Disc

Bahram Jafari, Vida Shams, Mojtaba Esfandiari, and Soroush Sadeghnejad

[TuP2-1.16]

Ultrasound Controllable Sonazoid-Conjugated NK Cell-Derived Exosomes Carrier for Solid Tumor Targeting

Ho Yong Kim, Hyeong-Woo Song, Han-Sol Lee, Daewon Jung, You Hee Choi, Chang-Sei Kim, Doyeon Bang, Byungjeon Kang, Jong-Oh Park, and Eunpyo Choi

[TuP2-1.17]

Magnetic Driven Capsule with the Open-Close Mechanism for Therapeutic Patch Delivery

Jihun Lee, Seungmin Bang, and Sukho Park

Poster Session 2-2	
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[TuP2-2.1]

Targeted Microparticle Delivery using Ultrasound Single Beam: A Preliminary Feasibility Study

Daewon Jung, Hiep Xuan Cao, Han-Sol Lee, Ho Yong Kim, Jong-Oh Park, and Byungjeon Kang

[TuP2-2.2]

Ultrasound-Based Tracking and Autonomous Manipulation of Nanocluster in Water

Hiep Xuan Cao, Daewon Jung, Chang-Sei Kim, Jong-Oh Park, Eunpyo Choi, and Byungjeon Kang

[TuP2-2.3]

Variable-Focus Acoustic Liquid Lens for Microparticle Mnipulation: Preliminary Study

JIYUN NAN, Eunpyo Choi, Jong-Oh Park, and Byungjeon Kang

[TuP2-2.4]

The Comparison of Homography Estimation Algorithms for Gastroscopic Images

Sang-Kun Chun, Byungwoo Cho, Jong-Oh Park, and Byungjeon Kang

[TuP2-2.5]

Implantable Cardiovascular Biopotential Acquisition and Stimulation Circuit for Robotic Transcatheter Leadless Pacemaker

Kyeongsik Nam, Gyuri Choi, Hyungseup Kim, Mookyoung Yoo, Sangmin Lee, and Hyoungho Ko

[TuP2-2.6]

A Platform for Real-Time Recording of Finger Forces and Surface EMG in Forearm Muscles

Agnes Grison, Aritra Kundu, Bruno Grandi Sgambato, Silvia Muceli, and Dario Farina

[TuP2-2.7]

Significance of Friction in Mechanical Impedance Estimation

Seongil Hwang, Hyunah Kang, and Sang Hoon Kang

[TuP2-2.8]

A Soft Bioelectronic Device for Stimulation of Peripheral Nerves

Hyunmin Moon, Byung Wook Park, and Sohee Kim

[TuP2-2.9]

Recording of Neural Signals from Peripheral Nerves using Flexible Penetrating Icroelectrode Arrays

Byung Wook Park, Jae-Won Jang, and Sohee Kim

[TuP2-2.10]

5-DOF Mobile Haptic Interface for Force Rendering

JuEun Choi, Sangeun Park, Usman Park, Youngjin Moon, and Jaesoon Choi

[TuP2-2.11]

Anatomical Landmarks Classification via Deep Learning for Upper Gastrointestinal Endoscopy

Byungwoo Cho, Sang-Kun Chun, Jong-Oh Park, and Byungjeon Kang

[TuP2-2.12]

Hybrid Robotic and Electrical Stimulation Training Enhances Performance and Reduces Mental Load

Lucille Cazenave, Martibn Einenkel, Aaron Yurkewich, Satoshi Endo, and Etienne Burdet

[TuP2-2.13]

Developing a Force Generation Assessment Tool: Implication for Improving Leg Function among Individuals with Stroke

Duguma Teshome Gemechu, Eunyoung Seo, Olga Valerevna Kim, Keun-Tae Kim, and Song Joo Lee

[TuP2-2.14]

Vibration Sensory Threshold Measurement using Mobile Devices

Rachel A. G. Adenekan, Alexis J. Lowber, Bryce N. Huerta, Allison M. Okamura, Kyle Yoshida, and Cara M. Nunez

[TuP2-2.15]

Effects of Adaptation Sessions using a Split-Belt Treadmill: Implication for Gait Rehabilitation after Stroke

Olga Valerevna Kim, Duguma Teshome Gemechu, and Song Joo Lee

[TuP2-2.16]

Feasibility of a Passive Wearable Device for Post-Stroke Shoulder Abduction Support

Elizabeth Vasquez, Cole Stewart Simpson, Genggeng Zhou, Grace Waguespack, Bryce N. Huerta, E. W. Hawkes, Maarten G. Lansberg, and Allison M. Okamura