

PROGRAM IFIT 2020

9th September 2020

9.30-10.00	OPENING SESSION	
10.00-12.30	BIOMECHANICAL ENGINEERING (10)	ROBOTICS I (10)
12.30-13.30	LUNCH	
13.30-16.00	HISTORY (9)	ROBOTICS II (10)
16.00-16.30	COFFEE BREAK	
16.30-18.30	MECHANISM DESIGN (8)	SUSTAINABLE SYSTEMS (6) + GEARING AND TRANSMISSION (2)

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9.30-11.30	IFTOMM ITALY-IFTOMM JAPAN (8)	TRIBOLOGY (8)
11.30-12.30	IFTOMM ITALY GENERAL ASSEMBLY	
12.30-13.30	LUNCH	
13.30-16.00	VEHICLE DYN AND CONTROL (10)	ROBOTICS III (10)
16.00-16.30	COFFEE BREAK	
16.30-17.30	MECHATRONICS (4)	VIBRATIONS (3)
17.30-18.15	PLENARY FINAL SESSION AND AWARD CEREMONY	
18.15-18.30	CLOSING SESSION	

Day 1
9th September
9.30-10.00 OPENING SESSION

Day 1 (9th September 2020):			Virtual Room 1
10.00 – 12.30 technical session: [10 papers x 15 min.] BIOMECHANICAL ENGINEERING			
Session Chair: Marco Ceccarelli (University of Rome Tor Vergata), Alessandro Ridolfi (University of Firenze)			
No.	Title	Authors	Time
018	Investigation of internal human body dynamic forces developed during a vehicle ride	Raj Desai, Anirban Guha, P. Seshu	10.00-10.15
019	Design of an articulated neck for testbed mannequin	Jose Luis Rueda Arreguin, Marco Ceccarelli, Christopher Torres-SanMiguel	10.15-10.30
021	Design and experimental characterization of an underactuated finger mechanism	Francesco Samani, Marco Ceccarelli	10.30-10.45
029	Handwheelchair.q: New prototype of manual wheelchair for everyday life	Paride Cavallone, Giuseppe Quaglia, Elvio Bonisoli	10.45-11.00
068	A novel architecture for a fully wearable assistive Hand Exoskeleton System	Nicola Secciani, Marco Pagliai, Francesco Buonamici, Federica Vannetti, Yary Volpe, Alessandro Ridolfi	11.00-11.15
069	Rehabilitative Hand Exoskeleton System: a new modular mechanical design for a remote actuated device	Lorenzo Bartalucci, Nicola Secciani, Jonathan Gelli, Andrea Della Valle, Alessandro Ridolfi, Benedetto Allotta	11.15-11.30
082	A Compliant and Robust Robotic Hand Fabricated with 3D Printed Soft Materials	Daniele Leonardis, Antonio Frisoli	11.30-11.45
085	A Twisted String Actuated Haptic Thimble for Cutaneous Force Feedback	Daniele Leonardis, Luca Tiseni, Domenico Chiaradia, Antonio Frisoli	11.45-12.00
103	A biomechanical rider model for multibody applications	Matteo Bova, Giovanni Carraretto, Roberto Lot, Matteo Massaro	12.00-12.15
104	Upper limbs musculoskeletal OpenSim model: customization and assessment	Laura Gastaldi, Elisa Panero, Valeria Rosso, Stefano Pastorelli, Taian Vieira, Alberto Botter	12.15-12.30

Day 1 (9th September 2020):			Virtual Room 2
10.00 – 12.30 technical session: [10 papers x 15 min.] ROBOTICS I			
Session Chair: Giulio Rosati (University of Padova), Lorenzo Scalera (University of Udine)			
No.	Title	Authors	Time
003	A Wearable Device for Ankle Motion Assistance	Marco Ceccarelli, Matteo Russo	10.00-10.15
011	Modeling and Identification of Vibrations in a UAV for Aerial Manipulation	Silvio Cocuzza, Alberto Doria	10.15-10.30

013	A novel robotic system for painting with eyes	Lorenzo Scalera, Stefano Seriani, Alessandro Gasparetto, Paolo Gallina	10.30-10.45
032	Flexible multibody modeling for structural flexibility analysis of a robotic manipulator	Cristian Enrico Capalbo, Giuseppe Carbone, Francesco Cosco, Alessio Galloro, Domenico Mundo	10.45-11.00
036	Mode predictive control for spatial cable driven parallel robot with variation of end effector's mass	Fouad Inel, Ali Medjebouri, L. A. Rybak, and Giuseppe Carbone	11.00-11.15
037	Robust control strategies of PUMA 560 robot manipulator	Ali Medjebouri, Fouad Inel, L. A. Rybak, and Giuseppe Carbone	11.15-11.30
038	Working cycle sequence optimization for industrial robots	Matteo Bottin, Giovanni Boschetti, Giulio Rosati	11.30-11.45
039	Iterative path planning of a serial manipulator in a cluttered known environment	Matteo Bottin, Giulio Rosati, Giulio Cipriani	11.45-12.00
040	One-step fast calibration of an industrial workcell	Nicola Comand, Matteo Bottin, Giulio Rosati	12.00-12.15
042	Optimal path planning of a redundant robot in food industry	Giulio Rosati, Silvio Cocuzza, Matteo Bottin, Nicola Comand, Giulio Cipriani	12.15-12.30

12.30-13.30 LUNCH

Day 1 (9th September 2020):		Virtual Room 1	
13.30 – 15.45 technical session: [9 papers x 15 min.] HISTORY OF MECHANISMS			
Session Chair: Marco Ceccarelli (University of Rome Tor Vergata), Walter Franco (Polytechnic of Torino)			
No.	Title	Authors	Time
004	The Bolognese silk mill: one of the earliest examples of factory system	Stefano Comino, Alessandro Gasparetto	13.30-13.45
008	A Brief History of Piano Mechanics	Matteo Russo, Jose A. Robles-Linares	13.45-14.00
009	Nikolai Kolchin (1894-1975)	Pavel Andrienko, Alexander Evgrafov, Vladimir Karazin, Denis Kozlikin	14.00-14.15
010	D'Alembert and the Wave Equation	Agamenon Oliveira	14.15-14.30
016	Design experiences for reconstruction of an ancient Roman crane	Marco Ceccarelli	14.30-14.45
024	The Italian Textbooks of Mechanics Applied to Machines in the Modern Age	Marco Cocconcelli	14.45-15.00
030	Using old Schröder-Reuleaux Models in Modern Kinematics Lectures	Walter Franco, Giuseppe Quaglia, Andrea Trivella	15.00-15.15
080	Recent Teaching Experiences on Mechanism and Machine Theory	Giuseppe Carbone, Domenico De Falco	15.15-15.30
092	The Odometers of Marcus Vitruvius Pollio and Leonardo da Vinci	Massimo Callegari, Stefano Brillarelli, Cecilia Scoccia	15.30-15.45

Day 1 (9th September 2020):			Virtual Room 2
13.30 – 16.00 technical session: [10 papers x 15 min.] ROBOTICS			
Session Chair: Giuseppe Carbone (University of Calabria), Giacomo Palmieri (Polytechnic University of the Marche)			
No.	Title	Authors	Time
044	Applications of learning algorithms to industrial robotics	Giulio Cipriani, Matteo Bottin, Giulio Rosati	13.30-13.45
045	Terrain sensing for planetary rovers	Giulio Reina, Mauro Dimastrogiovanni, Florian Cordes	13.45-14.00
049	Real-Time Strategy for Obstacle Avoidance in Redundant Manipulators	Cecilia Scoccia, Giacomo Palmieri, M. C. Palpacelli, Massimo Callegari	14.00-14.15
055	An Experimental Setup and Procedure for Stiffness Evaluation of Robot Manipulators	Ibrahimcan Görgülü, Erkan Paksoy, Giuseppe Carbone, Mehmet Ismet Can Dede	14.15-14.30
056	Investigation of dynamically decoupled anatomies for a serial metamorphic manipulator	Nikolaos Stravopodis, Vassilis Moulitanitis, Charalampos Valsamos	14.30-14.45
061	Gravity Compensation of Robotic Manipulators using Non-linear Spring Configurations	Gianluca Gatti, Giuseppe Carbone	14.45-15.00
062	Energy optimal design of jerk-continuous trajectories for industrial robots	Paolo Boscariol, Roberto Caracciolo, Dario Richiedei	15.00-15.15
063	Human Arm Motion Tracking by Kinect Sensor using Kalman Filter for Collaborative Robotics	Pierpaolo Palmieri, Matteo Melchiorre, Leonardo Sabatino Scimmi, Stefano Pastorelli, Stefano Mauro	15.15-15.30
070	A simplified approach to size multi-robot system for pick and place applications	Ahmed Magdy Ahmed Zaki, Marco Carnevale, Kevin Castelli, Hermes Giberti	15.30-15.45
086	Automation of glue deposition on shoe uppers by means of industrial robots and force control	Marco Carnevale, Kevin Castelli, Ahmed Magdy Ahmed Zaki, Hermes Giberti, Cesare Reina	15.45-16.00

16.00-16.30 COFFEE BREAK

Day 1 (9th September 2020):			Virtual Room 1
16.30 – 18.30 technical session: [8 papers x 15 min.] MECHANISM DESIGN			
Session Chair: Renato Vidoni (Free University of Bolzano/Bozen), Maria Cristina Valigi (University of Perugia)			
No.	Title	Authors	Time
005	Design Optimization of a Cartesian Assembly Cell	Alessandro Peruzzi, Luca Pugi, Lorenzo Berzi	16.30-16.45
017	The Effect of the Optimal Path Selection on the Forward Position Solutions of Parallel Mechanisms	Huiping Shen, Qing Xu, Ju Li, Ting-Li Yang	16.45-17.00

035	Multiphysical design optimization of multibody systems: Application to a Tyrolean weir cleaning mechanism	Veit Gufler, Erich Wehrle, Renato Vidoni	17.00-17.15
041	Improving part feeding: a rotatory device	Nicola Comand, Matteo Bottin, Giulio Rosati	17.15-17.30
073	Innovative project development: a successful case study	Pedro Ojeda, Miguel Ángel Zamarripa Muñoz	17.30-17.45
095	Design and Analysis of a top locking snap hook for landing manoeuvres	Maria Cristina Valigi, Silvia Logozzo, Monica Malvezzi	17.45-18.00
098	Numerical simulation of a 2D harmonic oscillator as coupling system for Child Restraint Systems	Miguel Angel Martinez Miranda, Christopher Torres-SanMiguel, Alejandro Flores-Campos, Marco Ceccarelli	18.00-18.15
012	Design and operation improvements for CADEL cable-driven elbow assisting device	Matteo Bottin, Marco Ceccarelli, Cuauhtemoc Morales Cruz, Giulio rosati	18.15-18.30

Day 1 (9th September 2020):		Virtual Room 2	
16.30 – 18.30 technical session: [8 papers x 15 min.]			
SUSTAINABLE SYSTEMS (6) & GEARING AND TRANSMISSION (2)			
Session Chair: Giuseppe Quaglia (Polytechnic of Turin), Macedon Moldovan (University of Transilvania)			
No.	Title	Authors	Time
022	Life Cycle Assessment for the ISWEC wave energy device	Andrea Di Muro, Sergej Antonello Sirigu, Giuseppe Giorgi, Raffaella Gerboni, Giovanni Bracco, Giuliana Mattiazzo	16.30-16.45
027	The Agri.q mobile robot: preliminary experimental tests	Paride Cavallone, Andrea Botta, Luca Carbonari, Carmen Visconte, Giuseppe Quaglia	16.45-17.00
031	Intermediate Agricultural Machines Energy Efficiency: The Example of Harvesting and Threshing	Walter Franco, Matteo De Piccoli	17.00-17.15
043	A path tracking algorithm for an autonomous wind-driven robot	Giulio Reina, Fabio Caruso, Mario Foglia	17.15-17.30
076	One year experimental evaluation of the electrical gain by solar tracking a 12 kW photovoltaic system installed on a building rooftop	Macedon Moldovan, Ion Visa	17.30-17.45
106	Efficient power-split powertrain for full electric vehicles	Giulio Reina, Giacomo Mantriota	17.45-18.00
007	Speed, torque and mathematical power relationship ratios, using SolidWorks parametric designed spur gear	Gerardo Brianza Gordillo, Miguel Ángel Zamarripa Muñoz, Christian Irving Enrique Rodríguez González	18.00-18.15
078	Efficiency and durability of DLC-coated gears	Marco Barbieri, Giovanni Iarriccio, Francesco Pellicano, Matteo Strozzi, Antonio Zippo	18.15-18.30

Day 2
10th September

Day 2 (10th September 2020):		Virtual Room 1	
9.30 – 11.30 technical session: [8 papers x 15 min.] IFTOMM ITALY-IFTOMM JAPAN			
Session Chair: Yukio Takeda (Tokyo Institute of Technology), Giuseppe Quaglia (Polytechnic of Torino)			
No.	Title	Authors	Time
054	Omnidirectional Mobile Robot and Vehicle, Uninterrupted Transmission System, Intuitive Operating Method, and Riding Robotics —Overview of Research Activities in Vibration Engineering Laboratory in Kyoto University—	Masaharu Komori, Tatsuro Terakawa	9.30-9.45
060	A UAV System Using an Eye-Tracking Device for Bedridden Patients: Consideration of Control Screens	Moeko Onda, Atsunori Kogawa, Yoshihiro Kai, Junko Hayama	9.45-10.00
064	Static analysis and actuator selection of (2-RRU)-URR parallel mechanism for thumb rehabilitation	Woo-hyeok Choi, Yukio Takeda	10.00-10.15
074	A Novel, Scalable Shape Memory Alloy Actuator Controlled by Fluid Temperature	Andres Osorio Salazar, Yusuke Sugahara, Daisuke Matsuura, Yukio Takeda	10.15-10.30
075	A thermally-driven bipedal walker with rugby ball shaped feet	Tomoki Chada, Shunsuke Yoshimoto, Akio Yamamoto	10.30-10.45
077	A vibration analysis of walking in human and robots	Marco Ceccarelli, Jose Luis Rueda Arreguin, Cuauhtemoc Morales-Cruz, Shuken Wada, Yukio Takeda, Nobuyuki Iwatsuki	10.45-11.00
105	A New Rehabilitation Device for Finger Extension Movement	Andrea Petinari, Yukio Takeda, Vincenzo Parenti Castelli	11.00-11.15
047	Quasi-Static Analysis of a Tapered Extendable Arm Inspired by an Origami with Modified Folding Diagram	Hiroshi Matsuo, Yukio Takeda, Erik Macho, Victor Petuya, Oscar Altuzarra, Alfonso Hernández	11.15-11.30

Day 2 (10th September 2020):		Virtual Room 2	
9.30 – 11.30 technical session: [8 papers x 15 min.] TRIBOLOGY			
Session Chair: Enrico Ciulli (University of Pisa), Alessandro Ruggiero (University of Salerno)			
No.	Title	Authors	Time
015	A simple modular test rig for measuring static and dynamic friction	Enrico Ciulli, Francesca Di Puccio, Lorenza Mattei	9.30-9.45
023	A novel characterization method for hard coatings: preliminary results with TiN	Luigi Mazza, Edoardo Goti, Andrea Mura, Bin Zhang	9.45-10.00

034	Valuation of real contact area of rough surfaces by using a finite element model	Alessandro Ruggiero, Marco De Stefano	10.00-10.15
046	Diagnostics of roller bearings faults during long-lasting tests	Paolo Emilio Lino Maria Pennacchi, Steven Chatterton, Andrea Vania	10.15-10.30
052	Air Pad Controlled by means of a Diaphragm-Valve: Static and Dynamic Behaviour	Federico Colombo, Lugi Lentini, Terenziano Raparelli, Andrea Trivella, Vladimir Viktorov,	10.30-10.45
081	Application of Generalized Models For Identification Of Viscoelastic Behavior	Francesco Carputo, Andrea Genovese, Aleksandr Sakhnevych	10.45-11.00
083	Pseudo-Villari experimental characterization of magneto-rheological elastomers	Renato Brancati, Giandomenico Di Massa, Andrea Genovese	11.00-11.15
087	Crank Mechanism Friction Modeling for Control-Oriented Applications	Renato Brancati, Massimiliano Muccillo, Francesco Tufano	11.15-11.30

11.30-12.30 IFTOMM ITALY GENERAL ASSEMBLY

12.30-13.30 LUNCH

Day 2 (10th September 2020):		Virtual Room 1	
13.30 – 16.00 technical session: [10 papers x 15 min.] VEHICLE DYNAMICS AND CONTROL			
Session Chair: Domenico Mundo (University of Calabria), Mauro Velardocchia (Polytechnic of Turin)			
No.	Title	Authors	Time
006	A Parametric Simulator for Railway Odometry Systems	Enrico Castagna, Luca Pugi, Giacomo Innocenti	13.30-13.45
025	A constrained nonlinear approach for monitoring the railway anti-yaw damping	Ingo Kaiser, Salvatore Strano, Mario Terzo, Ciro Tordela	13.45-14.00
028	Modelling and experimental validation of articulated mobile robots with hybrid locomotion system	Andrea Botta, Paride Cavallone, Luca Carbonari, Luigi Tagliavini, Giuseppe Quaglia	14.00-14.15
033	Design of understeer characteristics through torque vectoring on a lumped-parameter full car model	Michele Perrelli, Giuseppe Carbone, Basilio Lenzo, Domenico Mundo	14.15-14.30
050	Active Aerodynamics Design Methodology for Vehicle Dynamics Enhancement	Davide De Cupis, Henrique de Carvalho Pinheiro, Alessandro Ferraris, Andrea Giancarlo Airale, Massimiliana Carello	14.30-14.45

051	Autonomous Driving Scenario Generation in Overtake Manoeuvres Through Data Fusion	Henrique de Carvalho Pinheiro, Diego Cruz Stanke, Alessandro Ferraris, Massimiliana Carello, Giovanni Gabiati, Isabella Camuffo, Massimo Grillo	14.45-15.00
053	4x4 Hybrid Electric Vehicle vs. Fully Electric Vehicle Mobility in Drastically Changing Terrain Conditions	Jesse Paldan, Vladimir Vantsevich, David Gorsich, Michael Letherwood	15.00-15.15
079	Development Of An Innovative Instrument For Non-Destructive Viscoelasticity Characterization: VESevo	Flavio Farroni, Andrea Genovese, Antonio Maiorano, Aleksandr Sakhnevych, Francesco Timpone	15.15-15.30
099	Identification of Tire Transient Parameters from Vehicle Onboard Sensors Data	Lorenzo Mosconi, Alessandro Capobianco, Fabio Gerbino, Flavio Farroni, Aleksandr Sakhnevych, Francesco Timpone	15.30-15.45
089	Articulated Steering Control for an All-Terrain Tracked Vehicle	Antonio Tota, Enrico Galvagno, Mauro Velardocchia, Emanuele Rota, Andrea Novara	15.45-16.00

Day 2 (10th September 2020):		Virtual Room 2	
13.30 – 16.00 technical session: [10 papers x 15 min.] ROBOTICS III			
Session Chair: Monica Malvezzi (University of Siena), Marco Carricato (University of Bologna)			
No.	Title	Authors	Time
088	Position Analysis of a Class of n -RRR Planar Parallel Robots	Tommaso Marchi, Giovanni Mottola, Josep Maria Porta Pleite, Federico Thomas, Marco Carricato	13.30-13.45
090	A Mobile Robot for Undercarriage Inspection on Standard Railway Tracks	Domenico Chiaradia, Daniele Leonardis, Vincenzo Manno, Massimiliano Solazzi, Paolo Masini, Antonio Frisoli	13.45-14.00
091	Modeling a sensorized soft layer for adding compliance to the environment in robotic manipulation	Maria Pozzi, Chiara Gaudeni, Zubair Iqbal, Domenico Prattichizzo, Monica Malvezzi	14.00-14.15
093	Nonlinear Characterization of a Compact Series Visco-Elastic Element for Tendon-Driven Actuation	Domenico Chiaradia, Luca Tiseni, Daniele Leonardis, Antonio Frisoli	14.15-14.30
094	Kinematic Synthesis of a Tendon-Driven Robotic Arm	Giorgio Figliolini, Lanni Chiara, Luciano Di Donato, Riccardo Melloni, Adriano Bacchetta	14.30-14.45
100	Robotic Additive Printing of Cylindrical Auxetic Structures	Lisa Biasetto, Giovanni Boschetti, Riccardo Minto	14.45-15.00

101	Control Model for Collaborative Manufacturing: an integrated opened framework for Human-Robot Collaboration	Giovanni Boschetti, Maurizio Faccio, Riccardo Minto	15.00-15.15
067	A Smart Gluing Process by a Vision Guided Robotic System	Stefano Pagano, Riccardo Russo, Sergio Savino	15.15-15.30
096	Kinematic optimization for the design of a UR5 robot end-effector for cardiac tele-ultrasonography	Pietro Griffa, Alessandro Filippeschi, Carlo Alberto Avizzano	15.30-15.45
048	Collaborative robotics for rehabilitation: a multibody model for kinematic and dynamic analysis	Giorgia Chiriatti, Giacomo Palmieri, Matteo Claudio Palpacelli	15.45-16.00

16.00-16.30 COFFEE BREAK

Day 2 (10th September 2020):		Virtual Room 1	
16.30 – 17.30 technical session: [4 papers x 15 min.] MECHATRONICS			
Session Chair: Sergio Savino (University of Naples “Federico II”), Daniele Cafolla (Neuromed IRCCS)			
No.	Title	Authors	Time
057	Experimental approaches to measure displacements in mechanical systems through vision devices	Chiara Cosenza, Armando Nicolella, Vincenzo Niola, Sergio Savino	16.30-16.45
059	RGB-D vision device for tracking a moving target	Chiara Cosenza, Armando Nicolella, Vincenzo Niola, Sergio Savino	16.45-17.00
020	Design formulation for a multi-criteria optimization of mechatronic systems	Cuauhtemoc Morales-Cruz, Marco Ceccarelli, Edgar Alfredo Portilla-Flores	17.00-17.15
071	An implantable biocompatible smart stent for monitoring eventual restenosis	Daniele Cafolla, Fabio Sebastiano	17.15-17.30

Day 2 (10th September 2020):			Virtual Room 2
16.30 – 17.15 technical session: [3 papers x 15 min.] VIBRATIONS			
Session Chairs: Riccardo Russo, Stefano Pagano (University of Naples “Federico II”)			
No.	Title	Authors	Time
026	Friction coefficient estimation in sliding isolators through a nonlinear parametric estimation approach	Andrea Calabrese, Virginio Quaglini, Salvatore Strano, Mario Terzo, Ciro Tordela	16.30-16.45
065	An active vibration isolator based on electromagnetic actuator	Renato Brancati, Giandomenico Di Massa, Stefano Pagano	16.45-17.00
066	Development of an innovative Torsional Vibration Damper with Magneto-Rheological Elastomers for vehicle driveline.	Riccardo Russo, Ernesto Rocca	17.00-17.15

17.30-18.15 PLENARY FINAL SESSION AND AWARD CEREMONY

18.15-18.30 CLOSING SESSION