Program at a glance

Tuesday, June 18th	
16.00-18.00	Registration
17.00-17:30	Presentation ITWM
17.45-18.15	Presentation Smart Factory DFKI
18.15-19.30	Come Together @DFKI

Wednesday, June 19th			
Rooms	**Z02.02**	**Z03.08**	**Z03.07**
8.15-9.30	Registration		
9.00-9.30	Opening Ceremony (Z02.02)		
9.30-10.30	Keynote I (Z02.02)		
10.30-11.00	Coffee Break		
11.00-13.00	WeSS01	WeST01	WeST02
13.00-14.00	Lunch break		
14.00-16.00	WeSS02	WeST03	WeST04
16.00-16:30	Coffee Break		
16:30-17:30	WeSS03	WeST05	WeST06
19:30-22:00	Welcome Cocktail		

Thursday, June 20th			
Rooms	**Z02.02**	**Z03.08**	**Z03.07**
8.30-10.30	ThSS01	ThST01	ThST02
10.30-11.00	Coffee Break		
11.00-12.00	Keynote II (Z02.02)		
12.00-13.00	Lunch Break and ISC meeting*)		
13.00-14.00	ThST03	ThST04	ThST05
14.15	Departure to Social Event		
20.00	Gala Dinner, Award ceremony		

Friday, June 21th			
Rooms	**Z02.02**	**Z03.08**	**Z03.07**
9.00-10.00	FrSS01	FrST01	FrST02
10.00-11.00	Keynote III (Z02.02)		
11.00-11.15	Coffee Break		
11.15-12.45	FrSS02	FrST03	FrST04
12.45-13.00	Closing Ceremony		

*) ISC meeting until 14.00

Presentation time: 25 Min. + 5 Min. discussion each

Rooms

Z02.02	Lecture hall
Z03.08	Seminar room
Z03.07	Seminar room

Session Titles

WeSS01:	Safety Related Devices and Applications I
WeST01:	Medical Robotics
WeST02:	Mechanical Design and Kinematics I
WeSS02:	Advances in Human-Robot Interaction I
WeST03:	Path Planning and Navigation I
WeST04:	Industry Robotics I
WeSS03:	Safety Related Devices and Applications II
WeST05:	Path Planning and Navigation II
WeST06:	Industry Robotics II
ThSS01:	Advances in Human-Robot Interaction II
ThST01:	Mechanical Design and Kinematics II
ThST02:	Control I
ThST03:	Communication
ThST04:	Learning I
ThST05:	Control II
FrSS01:	Flexible Manufacturing in Industry 4.0 Environments I
FrST01:	Learning II
FrST02:	Multi Robot Systems
FrSS02:	Flexible Manufacturing in Industry 4.0 Environments II
FrST03:	Rehabilitation Robotics and Exoskeletons
FrST04:	Vision

Wednesday June 19th 2019		9.30-10.30
Room Z02.02	**Keynote I**	**From Deep Learning to Autonomous Driving** **Presenter:** *Prof. Dr. J. Marius Zöllner (KIT, Karlsruhe Institute of Technology and FZI, Karlsruhe, Germany)* **Chair:** *Karsten Berns (TU Kaiserslautern)*

Wednesday June 19th 2019		11.00-13.00
Room Z02.02	WeSS01	**Safety Related Devices and Applications I** **Chair: Med Amine Laribi (Université de Poitiers)** **Giuseppe Carbone (Università degli studi di Cassino e del Lazio Meridionale**)
11.00-11.30	113	Validation of an Ergonomic Contactless Master Device for a Teleoperation Platform *Sandoval Arevalo, Juan Sebastian*
11.30-12.00	126	Collaborative Robotics Safety Control Application using Dynamic Safety Zones based on the ISO/TS 15066:2016 *Giusti, Andrea*
12.00-12.30	134	Versatile Collaborative Robot Applications through Safety-rated Modification Limits *Brandstötter, Mathias*
12.30-13.00	144	Kinematic and Force Experiments on Cadavers for the Specification of a Tele-operated Craniotomy Robot *Laribi, Med Amine*

Wednesday June 19th 2019		11.00-13.00
Room Z03.08	WeST01	**Medical Robotics** **Chair: Roman Kamnik (University of Ljubljana)**
11.00-11.30	131	Extension of Matlab's PDE Toolbox for Developing Bionic Structural Optimization Methods: Overlapping Region Concept *Sun, Yilun*
11.30-12.00	112	Kinematic Design of a Hybrid Mechanism for Bone Reduction Surgery *Essomba, Terence*
12.00-12.30	117	Pneumo-tronic Perturbator For The Study Of Human Postural Responses *De Benedictis, Carlo*
12.30-13.00	139	Tilt-twist Method using Inertial Sensors to assess Spinal Posture during Gait *Digo, Elisa*

Wednesday June 19th 2019		11.00-13.00
Room Z03.07	WeST02	**Mechanical Design and Kinematics I** **Chair: Aleksandar Dragan Rodić (Institute Mihailo Pupin)**
11.00-11.30	109	An Integrated Taxonomy And Critical Review Of Module Designs For Serial Reconfigurable Manipulators *Stravopodis, Nikolaos Athanasios*
11.30-12.00	118	Geometry and Inverse Kinematics of 3- PRRS Type Parallel Manipulator *Baigunchekov, Zhumadil*
12.00-12.30	124	Linear Motion Mechanisms for Fine Position Adjustment of Heavy Weight Platforms *Hricko, Jaroslav*
12.30-13.00	125	Compliant Mechanisms for Motion/Force Amplifiers for Robotics *Hricko, Jaroslav*

Wednesday June 19th 2019		14.00-16.00
Room Z02.02	WeSS02	**Advances in Human-Robot Interaction I** **Chair: Kosta Jovanovic (ETF)** **Tadej Petric (Jož ef Stefan Institute)**
14.00-14.30	106	Bounded Self-Motion of Functional Redundant Robots *Ž lajpah, Leon*
14.30-15.00	116	On-line Adaption of Virtual Guides Through Physical Interaction *Petric, Tadej*
15.00-15.30	123	A Comparison of Policy Search in Joint Space and Cartesian Space for Refinement of Skills *Fabisch, Alexander*
15.30-16.00	127	KUKA LWR Robot Cartesian Stiffness Control Based on Kinematic Redundancy *Lukić , Branko*

Wednesday June 19th 2019		14.00-16.00
Room Z03.08	WeST03	**Path Planning and Navigation I** **Chair: Ivana Budinska (Slovak Academy of Sciences)**
14.00-14.30	130	Automatic Path Planning for Unmanned Ground Vehicle using UAV imagery *Zoto, Jurgen*
14.30-15.00	135	Indoor Navigation Using Existing Infrastructure for Professional Service Robots *Yovchev, Kaloyan Mariyanov*
15.00-15.30	167	Online Trajectory Planning and Collision Avoidance for a Group of Robots using Distributed Model Predictive Control *Görges, Daniel*
15.30-16.00	166	Whole-Body Planning for Obstacle Traversal with Autonomous Mobile Ground Robots *Oehler, Martin Sven*

Wednesday June 19th 2019		14.00-16.00
Room Z03.07	WeST04	**Industry Robotics I** **Chair: Leon Zlajpah (Jož ef Stefan Institute)**
14.00-14.30	105	Task-Dependent Energetic Analysis Of A 3 D.o.f. Industrial Manipulator *Gasparetto, Alessandro*
14.30-15.00	147	3D Printing with 6D of Freedom: Controlling Material Extrusion Speed *Kraljic, David*
15.00-15.30	164	Robotic Knitting in String Art as a Tool for Creative Design Processes *Jovanović , Marko*
15.30-16.00	156	Towards Using Natural User Interfaces for Robotic Arm Manipulation *Girbacia, Florin Stelian*

Wednesday June 19th 2019		16.30-17.30
Room Z02.02	WeSS03	**Safety Related Devices and Applications II** **Chair: Med Amine Laribi (Université de Poitiers)** **Giuseppe Carbone (Università degli studi di Cassino e del Lazio Meridionale)**
16.30-17.00	155	Efficient, Risk-Encoding Octrees For Path Planning With A Robot Manipulator *Werner, Tobias*
17.00-17.30	169	Structural Compliance Effects on the Accuracy and Safety of a R-CUBE Haptic Device *Carbone, Giuseppe*

Wednesday June 19th 2019		16.30-17.30
Room Z03.08	WeST05	**Path Planning and Navigation II** **Chair: Ivana Budinska (Slovak Academy of Sciences)**
16.30-17.00	159	Connections for Path Planning in Mobile Robotics *Nitulescu, Mircea*
17.00-17.30	171	Safe and Efficient Navigation of Autonomous Shuttle in Pedestrian Zone *Jan, Qazi Hamza*

Wednesday June 19th 2019		16.30-17.30
Room Z03.07	WeST06	**Industry Robotics II** **Chair: Leon Zlajpah (Jož ef Stefan Institute)**
16.30-17.00	141	Grounding Of Uncertain Force Parameters In Spoken Robot Commands *Wölfel, Kim*
17.00-17.30	165	Integrated Palletizing Workstation With An Industrial Robot And a Cobot *Ková č , Juraj*

Thursday June 20th 2019		8.30-10.30
Room Z02.02	ThSS01	**Advances in Human-Robot Interaction II** **Chair: Kosta Jovanovic (ETF)** **Tadej Petric (Jož ef Stefan Institute)**
8.30-9.00	132	Influence of Unmodelled External Forces on the Quality of Collision Detection *Gordic, Zavisa*
9.00-9.30	142	Use of Bimanual Haptic Teleoperation System for Optimized Task Performance with Adaptive Haptic Tunnel *Piš kur, Jož ica*
9.30-10.00	154	Feedforward Control Approaches to Bidirectional Antagonistic Actuators Based on Learning *Knež ević , Nikola Milomir*
10.00-10.30	160	Knowledge Acquisition Through Human Demonstration For Industrial Robotic Assembly *Gaš par, Timotej*

Thursday June 20th 2019		8.30-10.30
Room Z03.08	ThST01	**Mechanical Design and Kinematics II** **Chair: Said Zeghloul (Poitiers University)**
8.30-9.00	133	Design and Control of a Flapping Wing System Test Bench *Zarate Moya, Jose Luis*
9.00-9.30	143	Approximation Of Inverse Kinematic Solution Of A Metamorphic 3R Manipulator With MLP *Moulianitis, Vasileios*
9.30-10.00	163	Mechanical Design, Modeling and Simulation of Human-Size Cable-Driven Over-Actuated Robotic Arm *Rodić , Aleksandar Dragan*
10.00-10.30	172	A General Approach for Automating Teleoperated Construction Machines *Lee, Hyung Joo & Brell-Cokcan, Sigrid*

Thursday June 20th 2019		8.30-10.30
Room Z03.07	ThST02	**Control I** **Chair: Alessandro Gasparetto (University of Udine)**
8.30-9.00	158	Torque-Based Velocity Control for Safe Human-Humanoid Interaction *Kaul, Lukas*
9.00-9.30	104	On an Analytic Generation of Null Space Spanners in Robotics *Duleba, Ignacy*
9.30-10.00	119	Velocity Motion Path Control of Redundant Robot arms *Krastev, Evgeniy Hristov*
10.00-10.30	122	Reduction of Trajectory Encoding Data using a Deep Autoencoder Network: Robotic Throwing *Loncarevic, Zvezdan*

Thursday June 20th 2019		11.00-12.00
Room Z02.02	Keynote II	**Navigation of mobile robots in rough outdoor environments** **Presenter:** *Prof. Giovanni Muscato (IEEI University of Catania, Italy)* **Chair:** *Karsten Berns (TU Kaiserslautern)*

Thursday June 20th 2019		13.00-14.00
Room Z02.02	ThST03	**Communication** **Chair: Kosta Jovanovic (ETF)**
13:00-13.30	103	Communication Between Robots over Intelligent Objects Realized by RFID Tags *Thormann, Christian*
13.30-14.00	107	Average Consensus with Bounded Execution under Quantization Noise *Kenyeres, Martin*

Thursday June 20th 2019		13.00-14.00
Room Z03.08	ThST04	**Learning I** **Chair: Giovanni Muscato (IEEI University of Catania)**
13.00-13.30	110	Task Dependent Trajectory Learning from Multiple Demonstrations using Movement Primitives *Vidaković , Josip*
13.30-14.00	153	Learning to Predict 2D Object Instances by Applying Model-Based 6D Pose Estimation *Kisner, Hannes*

Thursday June 20th 2019		13.00-14.00
Room Z03.07	ThST05	**Control II** **Chair: Daniel Görges (TU Kaiserslautern)**
13.00-13.30	129	Shared Impedance Control Based on Reinforcement Learning in a Human-Robot Collaboration Task *Wu, Min*
13.30-14.00	150	Gain Scheduled PID Force Control Of A Robotic Arm For Sewing Fabrics *Koustoumpardis, Panagiotis N.*

Friday June 21th 2019		9.00-10.00
Room Z02.02	FrSS01	**Flexible Manufacturing in Industry 4.0 Environments I** **Chair: Achim Wager (German Research Center for Artificial Intelligence (DFKI))**
9.00-9.30	115	Implementation of an autonomous Tool Trolley in a Production Line *Engemann, Heiko*
9.30-10.00	136	Developing a Production Scheduling System for Modular Factory Using Constraint Programming *Park, Hoonseok*

Friday June 21th 2019		9.00-10.00
Room Z03.08	FrST01	**Learning II** **Chair: Carlo Ferraresi (Polytechnic of Turin)**
9.00-9.30	157	Dataset Generation Using A Simulated World *Vierling, Axel*
9.30-10.00	161	Convolutional Encoder-Decoder Networks for Robust Image-to-Motion Prediction *Ridge, Barry Martin*

Friday June 21th 2019		9.00-10.00
Room Z03.07	FrST02	**Multi Robot Systems** **Chair: Nick Andrei Ivanescu (Polytechnic University of Bucharest)**
9.00-9.30	138	A Swarm Algorithm Inspired by Tree-Dwelling Bats. Experiments and Evaluations *Budinska, Ivana*
9.30-10.00	149	A Cloud Based Solution for Secure Sharing Robot and Manufacturing Resources for Research *Anton, Florin*

Friday June 21th 2019		10.00-11.00
Room Z02.02	Keynote III	**Geometric Modeling of Robotic Manipulators – A Short Overview for Practitioners** **Presenter:** *Univ.-Prof. Dr.-Ing. habil. Andreas Müller (Johannes Kepler University, Linz, Austria)* **Chair:** *Leon Zlajpah (Jož ef Stefan Institute)*

Friday June 21th 2019		11.15-12:45
Room Z02.02	FrSS02	**Flexible Manufacturing in Industry 4.0 Environments II** **Chair:** Achim Wager (German Research Center for Artificial Intelligence (DFKI))
11.15-11.45	151	Robotic System Reliability Analysis And RUL Estimation Using An Iterative Approach *Pellegrini, Nicola*
11.45-12.15	162	Edge Computing in Smart Production *UM, Jumyung*
12:15-12:45	168	Neural Adaptive Control of a Robot Joint Using Secondary Encoders *Weigand, Jonas*

Friday June 21th 2019		11.15-12:45
Room Z03.08	FrST03	**Rehabilitation Robotics and Exoskeletons** **Chair: Said Zeghloul (Poitiers University)**
11.15-11.45	101	Wrist Rehabilitation Equipment Based on the Fin-Ray® Effect *Deaconescu, Andrea*
11.45-12.15	146	A Two-degree of Freedom Mobile Ankle Rehabilitation Unit (MARU) to Improve and Track Joint Mobility *Detzel, Samuel*
12:15-12:45	140	Model Based Analysis of Trunk Exoskeleton for Human Efforts Reduction *Panero, Elisa*

Friday June 21th 2019		11.15-12:45
Room Z03.07	FrST04	**Vision** **Chair: Karol Dobrovodsky (Slovak Academy of Sciences)**
11.15-11.45	111	Adaptive Recognition for Tracking of Moving Objects *Dobrovodský, Karol*
11.45-12.15	114	Probabilistic Orientation Resolution for Near Symmetrical Objects using Depth Images *Hafez, Nawal Amr*
12:15-12:45	170	Generation Of Elevation Maps For Planning And Navigation Of Vehicles In Rough Natural Terrain *Keen, Hannan Ejaz*