

Conference Overview

Monday, June 11th 2018		
9:30 -17:50	Workshops and Tutorials	Congress Center
18:00-21:00	<i>Welcome Reception</i>	<i>Congress Center</i>
Tuesday, June 12th 2018		
9:00-16:30	Main Conference Day 1	Congress Center
Wednesday, June 13th, 2018		
8:50 -16:30	Main Conference Day 2	Congress Center
17:00-23:00	<i>IAS-15 Banquet</i>	<i>Favorite Palace</i>
Thursday, June 14th, 2018		
08:50-16:00	Main Conference Day 3	Congress Center
18:30-21:30	Farewell	Restaurant Medici
Friday, June 15th, 2018		
09:00-17:30	Labtour	Karlsruhe
17:30-19:30	Final Farewell	<i>Brewery Hoepfner</i>

Workshops and Tutorials

June 11		Full Day Workshops	
Seminar Room 9		Seminar Room 10	
10:00-12:00	<p>Learning applications for Intelligent autonomous robots</p> <p>Slot 1</p> <p><i>F. Nori, S. Michieletto, E. Pagello, Google DeepMind, UK</i></p>	9:30-12.30	<p>Driving fun, comfort and stress in autonomous driving - a human centred approach</p> <p>Slot 1</p> <p><i>Bernhard Schick, Corinna Seidler, University of Applied Sciences Kempten, Germany</i></p>
12:00-13:30	<i>Lunch Break (not included)</i>	12:30-13:30	<i>Lunch Break (not included)</i>
13:30-15:30	<p>Learning applications for Intelligent autonomous robots</p> <p>Slot 2</p> <p><i>F. Nori, S. Michieletto, E. Pagello, Google DeepMind, UK</i></p>	13:30-15:30	<p>Driving fun, comfort and stress in autonomous driving - a human centred approach</p> <p>Slot 2</p> <p><i>Bernhard Schick, Corinna Seidler, University of Applied Sciences Kempten, Germany</i></p>
15:30-15:50	<i>Coffee Break</i>	15:30-15:50	<i>Coffee Break</i>
15:50-17:50	<p>Learning applications for Intelligent autonomous robots</p> <p>Slot 3</p> <p><i>F. Nori, S. Michieletto, E. Pagello, Google DeepMind, UK</i></p>	15:50-16:30	<p>Driving fun, comfort and stress in autonomous driving - a human centred approach</p> <p>Slot 3</p> <p><i>Bernhard Schick, Corinna Seidler, University of Applied Sciences Kempten, Germany</i></p>
18:00-21:00	<i>Welcome Reception</i>		

June 11	Half Day Workshops and Tutorial		
	Seminar Room 3	Seminar Room 4	Seminar Room 8
13:30-15:30	Tutorial: Probabilistic Logic for Multi-Source Knowledge Slot 1 <i>Thomas C. Henderson, University of Utah; USA</i>	Intelligent Unmanned Aerial Vehicle Systems Slot 1 <i>Shabnam Sadeghi Esfahlani, Anglia Ruskin University, UK</i>	Robot Perception of Humans Slot 1 <i>Miura, Menegatti, Bellotto, Ghidoni, Toyohashi University of Technology, Japan</i>
15:30-15:50	<i>Coffee Break</i>		
15:50-17:50	Tutorial: Probabilistic Logic for Multi-Source Knowledge Slot 2 <i>Thomas C. Henderson, University of Utah; USA</i>	Intelligent Unmanned Aerial Vehicle Systems Slot 2 <i>Shabnam Sadeghi Esfahlani, Anglia Ruskin University, UK</i>	Robot Perception of Humans Slot 2 <i>Miura, Menegatti, Bellotto, Ghidoni, Toyohashi University of Technology, Japan</i>
18:00-21:00	<i>Welcome Reception</i>		

Technical Program Overview

June 12	First Conference Day		
	Congress Room	Seminar Room 1	Seminar Room 2
09:00-09:30	Welcome Session		
09:30-10:30	<p>Keynote Talk: Hajime Asama Chair: Marcus Strand Congress Room</p> <p>Robot Technology for Accident Response and Decommission of Fukushima Daiichi Nuclear Power Stations <i>The University of Tokyo, Japan</i></p>		
10:30-10:50	Coffee Break		
10:50-12:30	Session 1: Human Robot Interaction	Session 2: Aerial Vehicles	Session 3: Sensing and Actuation
12:30-13:30	Lunch Break (not included)		
13:30-14:30	<p>Keynote Talk: Gregory Dudek Chair: Vitor Sequeira Congress Room</p> <p>Building robots that learn to work with, and work for, human Supervisors <i>McGill University, Canada</i></p>		
14:30-14:50	Coffee Break		
14:50-16:30	Session 4: Machine Learning for Robotics	Session 5: Human detection and Action recognition	Session 6: Optimization and Control

June 13	Second Conference Day		
	Congress Room	Seminar Room 1	Seminar Room 2
08:50-10:30	Session 7: Computer Vision 1	Session 8: Path Planning 1	Session 9: Applications 1
10:30-10:50	<i>Coffee Break</i>		
10:50-12:30	Session 10: Computer Vision 2	Session 11: Path Planning 2	Session 12: Applications 2
12:30-13:30	<i>Lunch Break (not included)</i>		
13:30-14:30	<p>Keynote Talk: Christian Scheurer Chair: Vitor Sequeira Congress Room</p> <p>Intuitive operation and programming of highly redundant mobile manipulators <i>KUKA AG, Germany</i></p>		
14:30-14:50	<i>Coffee Break</i>		
14:50-16:30	Session 13: 3D Sensing	Invited Session 14: Proving Grounds for automated driving	Session 15: Service Robotics
16:45-18:15	Shuttle for Banquet (16:45, 17:30, 18:15)		
17:00-23:00	IAS-15 Conference Banquet at "Favorite Palace"		
22:00-23:30	Shuttle for Baden-Baden (22:00, 22:45, 23:30)		

June 14	Third Conference Day		
	Congress Room	Seminar Room 1	Seminar Room 2
08:50-10:30	Session 16: Robot Teaching	Session 17: Robot Design 1	Session 18: Intelligent Systems
10:30-10:50	<i>Coffee Break</i>		
10:50-12:30	Session 19: Multi Agent Systems	Session 20: Robot Design 2	Session 21: Navigation
12:30-13:30	<i>Lunch Break (not included)</i>		
13:30-14:30	<p>Keynote Talk: Rinie van Est Chair: Rüdiger Dillmann Congress Room</p> <p>Human friendly robot Society <i>Rathenau Instituut, The Netherlands</i></p>		
14:30-14:50	<i>Coffee Break</i>		
14:50-16:00	IAS Society Assembly Congress Room		
18:30-20:30	Farewell Party		

Tuesday Late AM

June 12	Congress Room	Seminar Room 1	Seminar Room 2
10:50 - 12:30	Session 1 – Human-robot Interaction Chairs: Rüdiger Dillmann Patrick Dunau	Session 2 – Aerial Vehicles Chairs: Marcus Strand Jingchuan Wang	Session 3 – Sensing and Actuation Chairs: Shashank Pathak Stefano Tortora
10:50	Proposal and Validation of an Index for the Operator’s Haptic Sensitivity in a Master-Slave System. <i>Dongbo Zhou and Kotaro Tadano</i>	A Localizability Constraint-Based Path Planning Method for Unmanned Aerial Vehicle. <i>Behnam Irani, Weidong Chen and Jingchuan Wang</i>	Configuration Depending Crosstalk Torque Calibration for Robotic Manipulators with Deep Neural Regression Models. <i>Adrian Zwiener, Sebastian Otte, Richard Hanten and Andreas Zell</i>
11:15	Operating a Robot by Nonverbal Voice Expressed with Formants. <i>Shizuka Takahashi and Ikuo Mizuuchi</i>	Using IMU Sensor and EKF Algorithm in Attitude Control of a Quad-rotor Helicopter. <i>Jongwoo An and Jangmyung Lee</i>	A New Cable-driven Torsion and Bending Soft Actuator Inspired by Parallel Robot. <i>Jihong Yan, Ruoyu Zhang, Xinbin Zhang and Jie Zhao</i>
11:40	Reduced Feature Set for Emotion Recognition based on Angle and Size Information. <i>Patrick Dunau, Mike Bonny, Marco Huber and Jürgen Beyerer</i>	Unmanned Aerial Vehicles in Wireless Sensor Networks: Automated Sensor Deployment and Mobile Sink Nodes. <i>Juan Marchal Gomez, Thomas Wiedemann and Dmitriy Shutin</i>	Simulation of the SynTouch BioTac Sensor. <i>Philipp Ruppel, Yannick Jonetzko, Michael Görner, Norman Hendrich and Jianwei Zhang</i>
12:05	Multimodal path planning using potential field for human-robot interaction <i>Yosuke Kawasaki, Ayanori Yorozu and Masaki Takahashi</i>		Force Sensing for Multi-Point Contact using a Constrained, Passive Joint Based on the Moment-Equivalent Point. <i>Shouhei Shirafuji and Jun Ota</i>

Tuesday Late PM

June 12	Congress Room	Seminar Room 1	Seminar Room 2
14:50 - 16:30	<p>Session 4 – Machine Learning for Robotics</p> <p>Chairs: Gordon Lee Oliver Rettig</p>	<p>Session 5 – Human Detection and Action Recognition</p> <p>Chairs: Edward Grant Emanuele Menegatti</p>	<p>Session 6 – Optimization and Control</p> <p>Chairs: Sashank Pathak Shuhei Ikemoto</p>
14:50	<p>Simulation and Transfer of Reinforcement Learning Algorithms for Autonomous Obstacle Avoidance.</p> <p><i>Max Lenk, Paula Hilsendegen, Silvan Michael Müller, Oliver Rettig and Marcus Strand</i></p>	<p>Robot Vision System for Real-Time Human Detection and Action Recognition.</p> <p><i>Satoshi Hoshino and Kyohei Niimura</i></p>	<p>Nonlinear Model Predictive Control for Two-Wheeled Service Robots.</p> <p><i>Shunichi Sekiguchi, Ayanori Yorozu, Kazuhiro Kuno, Masaki Okada, Yutaka Watanabe and Masaki Takahashi</i></p>
15:15	<p>Hi-Val: Iterative Learning of Hierarchical Value Functions for Policy Generation.</p> <p><i>Roberto Capobianco, Francesco Riccio and Daniele Nardi</i></p>	<p>Movement Based Classification of People with Stroke through Automated Analysis of Three-Dimensional Motion Data.</p> <p><i>John Kelly, Steve Leigh, Carol Giuliani, Rachael Brady, Martin McKeown and Edward Grant</i></p>	<p>A generalised method for adaptive longitudinal control using reinforcement learning</p> <p><i>Shashank Pathak, Suvam Bag and Vijay Nadkarni</i></p>
15:40	<p>Learning-based Task Failure Prediction for Selective Dual-arm Manipulation in Warehouse Stowing.</p> <p><i>Shingo Kitagawa, Kentaro Wada, Kei Okada and Masayuki Inaba</i></p>	<p>Real-time marker-less multi-person 3D pose estimation in RGB-Depth camera networks.</p> <p><i>Marco Carraro, Matteo Munaro, Jeff Burke and Emanuele Menegatti</i></p>	<p>Reconstructing State-space from Movie using Convolutional Autoencoder for Robot Control.</p> <p><i>Kazuma Takahara, Shuhei Ikemoto and Koh Hosoda</i></p>
16:05	<p>Learning of Motion Primitives Using Reference-Point-Dependent GP-HSMM for Domestic Service Robots</p> <p><i>Kensuke Iwata, Tomoaki Nakamura and Takayuki Nagai</i></p>	<p>People Finding under Visibility Constraints using Graph-Based Motion Prediction.</p> <p><i>Abdelmoniem Bayoumi, Philipp Karkowski and Maren Bennewitz</i></p>	<p>BSplines properties with Interval Analysis for Constraint Satisfaction Problem: Application in robotics.</p> <p><i>Rawan Kalawoun, Sébastien Lengagne, François Bouchon and Youcef Mezouar</i></p>

Wednesday Early AM

June 13	Congress Room	Seminar Room 1	Seminar Room 2
	<p>Session 7 – Computer Vision 1</p> <p>Chairs: Piotr Skrzypczynski Francesco Amigoni</p>	<p>Session 8 – Path Planning 1</p> <p>Chairs: Jörg Roth Taimoor Shakeel Sheikh</p>	<p>Session 9 – Applications 1</p> <p>Chairs: Marcus Strand Kensuke Harada</p>
<p>08:50 - 10:30</p>	<p>Deep Learning Waterline Detection for Low-cost Autonomous Boats.</p> <p><i>Lorenzo Steccanella, Domenico Bloisi, Jason Blum and Alessandro Farinelli</i></p>	<p>A Viterbi-like Approach for Trajectory Planning with Different Maneuvers.</p> <p><i>Joerg Roth</i></p>	<p>Grasping strategies for picking items in an online shopping warehouse.</p> <p><i>Nataliya Nechyporenko, Antonio Morales and Angel P. Del Pobil</i></p>
<p>08:50</p>	<p>Context-aware Recognition of Drivable Terrain with Automated Parameters Estimation.</p> <p><i>Jan Wietrzykowski and Piotr Skrzypczynski</i></p>	<p>Improving Relaxation-based Constrained Path Planning via Quadratic Programming.</p> <p><i>Franco Fusco, Olivier Kermorgant and Philippe Martinet</i></p>	<p>Learning Based Industrial Bin-picking Trained with Approximate Physics Simulator</p> <p><i>Ryo Matsumura, Kensuke Harada, Yukiyasu Domae and Weiwei Wan</i></p>
<p>09:15</p>	<p>Crop Edge Detection based on Stereo Vision.</p> <p><i>Johannes Kneip, Patrick Fleischmann and Karsten Berns</i></p>	<p>Robust Path Planning against Pose Errors for Mobile Robots in Rough Terrain.</p> <p><i>Yuki Doi, Yonghoon Ji, Yusuke Tamura, Yuki Ikeda, Atsushi Umemura, Yoshihary Kaneshima, Hiroki Murakami, Atsushi Yamashita and Hajime Asama</i></p>	<p>Tool Exchangeable Grasp/Assembly Planner</p> <p><i>Kensuke Harada, Kento Nakayama, Weiwei Wan, Kazuyuki Nagata, Natsuki Yamanobe and Ixchel G. Ramirez-Alpizar</i></p>
<p>09:40</p>	<p>Extracting Structure of Buildings using Layout Reconstruction.</p> <p><i>Matteo Luperto and Francesco Amigoni</i></p>	<p>Stereo Vision-Based Optimal Path Planning with Stochastic Maps for Mobile Robot Navigation.</p> <p><i>Ilya Afanasyev and Taimoor Shakeel Sheikh</i></p>	<p>Daily Assistive Robot Uses a Bag for Carrying Objects with Pre-contact Sensing Gripper.</p> <p><i>Naoya Yamaguchi, Shun Hasegawa, Kei Okada and Masayuki Inaba</i></p>
<p>10:05</p>			

Wednesday Late PM

June 13	Congress Room	Seminar Room 1	Seminar Room 2
14:50 - 16:30	Session 13 – 3D Sensing Chairs: Pierluigi Taddei Matteo Matteucci	Session 14 – Proving grounds for automated driving (Invited Session) Chair: Wolfram Klar	Session 15 – Service Robotics Chairs: Ayanori Yorozu Francesco Amigoni
14:50	Global Registration of Point Clouds for Mapping. <i>Carlos Sanchez Belenguer, Simone Ceriani, Pierluigi Taddei, Erik Wolfart and Vitor Sequeira</i>	Testing of Automated Vehicles on Public Roads <i>Wolfram Klar</i>	Convolutional Channel Features-based Person Identification for Person Following Robots. <i>Kenji Koide and Jun Miura</i>
15:15	Cluster ICP: Towards Sparse to Dense Registration. <i>Mohamed Lamine Tazir, Tawsif Gokhool, Paul Checchin, Laurent Malaterre and Laurent Trassoudaine</i>	A Multi-layer Autonomous Vehicle and Simulation Validation Ecosystem Axis: ZalaZONE <i>Zsolt Szalay, Zoltán Hamer, Peter Simon</i>	Service robot using estimation of body direction based on gait for human robot interaction. <i>Ayanori Yorozu and Masaki Takahashi</i>
15:40	Markerless Ad-hoc Calibration of a Hyperspectral Camera and a 3D Laser Scanner. <i>Felix Igelbrink, Thomas Wiemann, Sebastian Pütz and Joachim Hertzberg</i>	ADAS Development needs real and virtual environment <i>Thomas Zach</i>	Accurate Pouring with an Autonomous Robot Using an RGB-D Camera. <i>Chau Do and Wolfram Burgard</i>
16:05	Predicting the Next Best View for 3D Mesh Refinement. <i>Luca Morreale, Andrea Romanoni and Matteo Matteucci</i>	Towards Large Scale Urban Traffic Reference Data: Smart Infrastructure in the Test Area Autonomous Driving Baden- Württemberg <i>Tobias Fleck, Karam Daaboul, Michael Weber, Philip Schoerner Marek Wehmer, Jens Doll, Stefan Orf, Nico Sußmann_ Christian Hubschneider, Marc Rene Zofka, Florian Kuhnt, Ralf Kohlhaas Ingmar Baumgart, Raoul Zoellner and J. Marius Zoellner</i>	MS3D: mean-shift object tracking boosted by joint back projection of color and depth. <i>Yongheng Zhao and Emanuele Menegatti</i>

Thursday Early AM

June 14	Congress Room	Seminar Room 1	Seminar Room 2
	Session 16 – Robot Teaching	Session 17 – Robot Design 1	Session 18 – Intelligent Systems
08:50 - 10:30	Chairs: Emanuele Menegatti Rüdiger Dillmann	Chairs: Masahiro Shimizu Jonas Beil	Chairs: Jun Miura Shouhei Shirafuji
8:50	User-friendly Intuitive Teaching Tool for Easy and Efficient Robot Teaching in Human-Robot Collaboration. <i>Hyunmin Do, Taeyong Choi, Dong Il Park, Hwi-su Kim and Chanhun Park</i>	A Rolling Contact Joint Lower Extremity Exoskeleton Knee. <i>Jonas Beil and Tamim Asfour</i>	Probabilistic Logic for Intelligent Systems. <i>Thomas Henderson, Robert Simmons, Bernard Serbinowski, Xiuyi Fan, Amar Mitiche and Michael Cline</i>
09:15	A critical reflection on the expectations about the impact of educational robotics on problem solving capability. <i>Francesca Agatolio, Michele Moro, Emanuele Menegatti and Monica Pivetti</i>	Towards a stair climbing robot system based on a re-configurable linkage mechanism. <i>Omar El-Farouk, Sarah El-Safty, Thomas Haalboom and Marcus Strand</i>	Aggregating Models for Anomaly Detection in Space Systems: Results from the FCTMAS Study. <i>Francesco Amigoni, Maurizio Ferrari Dacrema, Alessandro Donati, Christian Laroque, Michèle Lavagna and Alessandro Riva</i>
09:40	Inferring Capabilities from Appearance and Experiments. <i>Ashwin Khadke and Manuela Veloso</i>	Can Walking be modeled in a pure Mechanical Fashion. <i>Antonio D'Angelo</i>	Detection of Motion Patterns and Transition Conditions for Automatic Flow Diagram Generation of Robotic Tasks. <i>Guilherme de Campos Affonso, Kei Okada and Masayuki Inaba</i>
10:05	Triggering robot hand reflexes with human EMG data using spiking neurons. <i>J. Camilo Vasquez Tieck, Sandro Weber, Terrence C. Stewart, Arne Rönnau and Rüdiger Dillmann</i>	Modular Robot That Modeled Cell Membrane Dynamics of a Cellular Slime Mold. <i>Ryusuke Fuse, Masahiro Shimizu, Shuhei Ikemoto and Koh Hosoda</i>	Least Action Sequence Determination in the Planning of Non-Prehensile Manipulation with Multiple Mobile Robots. <i>Changxiang Fan, Shouhei Shirafuji and Jun Ota</i>

Thursday Late AM

June 14	Congress Room	Seminar Room 1	Seminar Room 2
	Session 19 – Multi-agent Systems	Session 20 – Robot Design 2	Session 21 – Navigation
10:50 - 12:30	Chairs: Tom Henderson Gordon Lee	Chairs: Piotr Skrzypczynski Shuhei Ikemoto	Chairs: Oliver Rettig Elias Khsheibun
10:50	Heterogeneous Multi-Agent Routing Strategy for Robot-and-Picker-to-Good Order Fulfillment System <i>Hanfu Wang, Weidong Chen and Jingchuan Wang</i>	Locomotion of hydraulic amoeba-like robot utilizing transition of mass distribution. <i>Takashi Takuma and Kyotaro Hamachi</i>	An Integrated Planning of Exploration, Coverage, and Object Localization for an Efficient Indoor Semantic Mapping. <i>Diar Sasongko and Jun Miura</i>
11:15	Multiagent Sensor Fusion for Connected & Autonomous Vehicles to Enhance Navigation Safety. <i>Suryansh Saxena, Isaac Isukapati, Stephen Smith and John Dolan</i>	Common Dimensional Autoencoder for Identifying Agonist-Antagonist Muscle Pairs in Musculoskeletal Robots. <i>Hiroaki Masuda, Shuhei Ikemoto and Koh Hosoda</i>	Unsupervised Hump Detection for Mobile Robots Based on Kinematic Measurements and Deep-Learning Based Autoencoder. <i>Oliver Rettig, Silvan Müller, Marcus Strand and Darko Katic</i>
11:40	Multiple Mobile Robot Management System for Transportation Tasks in Automated laboratories Environment. <i>Ali Abduljalil Abdulla Abdulla, Steffen Junginger, Xiangyu Gu, Norbert Stoll and Kerstin Thurow</i>	Analysis of variable-stiffness soft finger joints. <i>Daniel Cardin-Catalan, Angel P. Del Pobil and Antonio Morales</i>	Efficient Coverage of Unstructured Environments. <i>Elias Khsheibun, Norman Kohler and Maren Bennewitz</i>
12:05		Method for Robot to Create New Function by Uniting with Surrounding Objects. <i>Yukio Morooka and Ikuo Mizuuchi</i>	