Technical Program for Monday October 1, 2018

MoA1  Room 1.L2
WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part I (Workshop)

Chair: Hang, Kaiyu  Yale University

09:00-11:00  MoA1.1
Examining Sensing Modalities for Robust and Dexterous Object Manipulation*.

Hang, Kaiyu  Yale University
Ding, Hao  ABB Corporate Research Center, Germany
Li, Miao  Wuhan University
Kragic, Danica  KTH
Dollar, Aaron  Yale University

MoA2  Room 1.L3
WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part I (Workshop)

Chair: Ghalamzan Esfahani, Amir Masoud  University of Birmingham

09:00-11:00  MoA2.1
Task-Informed Grasping for Rigid and Deformable Object Manipulation*.

Ghalamzan Esfahani, Amir Masoud  University of Birmingham
Alambeigi, Farshid  Johns Hopkins University
Aghajani Pedram, Sahba  University of California, Los Angeles
Detry, Renaud  Jet Propulsion Laboratory
Santos, Veronica J.  University of California, Los Angeles
Stolkin, Rустам  University of Birmingham

MoA3  Room 4.L3
WSMFD03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part I (Workshop)

Chair: Lanillos, Pablo  Technische Universität München

09:00-11:00  MoA3.1
The Utility of Body, Interaction, and Self Learning in Robotics*.

Lanillos, Pablo  Technische Universität München
Hoffmann, Matej  Faculty of Electrical Engineering, Czech Technical University in Prague
Tani, Jun  Okinawa Institute of Science and Technology
Sandini, Giulio  Italian Institute of Technology
Cheng, Gordon  Technical University of Munich

MoA4  Room 1.R3
WSMFD04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part I (Workshop)

Chair: Cognetti, Marco  Centre National De La Recherche Scientifique (CNRS)

09:00-11:00  MoA4.1
Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy*.

Cognetti, Marco  Centre National De La Recherche Scientifique (CNRS)

MoA5  Room 2.L2
WSMFD05 - Controlling Soft Robots: Model-Based vs. Model-Free Approaches, Part I (Workshop)

Chair: Monje, Conception A.  University Carlos III of Madrid

09:00-11:00  MoA5.1
Controlling Soft Robots: Model-Based vs. Model-Free Approaches*.

Monje, Conception A.  University Carlos III of Madrid
Ott, Christian  German Aerospace Center (DLR)
Hauser, Helmut  University of Bristol
Laschi, Cecilia  Scuola Superiore Sant'Anna

MoA6  Auditorium
WSMFD06 - towards Robots That Exhibit Manipulation Intelligence, Part I (Workshop)

Chair: Beetz, Michael  University of Bremen

09:00-11:00  MoA6.1
Towards Robots That Exhibit Manipulation Intelligence*.

Beetz, Michael  University of Bremen
Bartels, Georg  Universität Bremen
Khatib, Oussama  Stanford University
Albu-Schäffer, Alin  DLR - German Aerospace Center
Toussaint, Marc  University of Stuttgart

MoA7  Room 1.L5
WSMFD07 - Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18), Part I (Workshop)

Chair: Martinet, Philippe  INRIA

09:00-11:00  MoA7.1
10th Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18)*.

Martinet, Philippe  INRIA
Laugier, Christian  INRIA
Stiller, Christoph  Karlsruhe Institute of Technology
Nunes, Urbano  Instituto de Sistemas e Robótica
Sotelo Vázquez, Miguel Angel  University of Alcalá

MoA8  Room 4.R1
WSMFD08 - Variable Impedance Robot Skills: Control & Learning, Part I (Workshop)

Chair: Abu-Dakka, Fares J.  Istituto Italiano Di Tecnologia

09:00-11:00  MoA8.1
Variable Impedance Robot Skills: Control & Learning*.

Abu-Dakka, Fares J.  Istituto Italiano Di Tecnologia
Abderrahim, Mohamed  Carlos III University
Lee, Dongheui  Technical University of Munich
Ikeura, Ryojun  Mie University
WSMFD09 - Language and Robotics, Part I (Workshop)

Chair: Horii, Takato  
The University of Electro-Communications

MoA9.1  
9:00-11:00

Language and Robotics*.  
Horii, Takato  
The University of Electro-Communications
Ugar, Emre  
Bogazici University
Taniguchi, Tadahiro  
Ritsumeikan University
Hinault, Xavier  
INRIA
Inamura, Tetsunari  
National Institute of Informatics
Nagai, Takayuki  
University of Electro-Communications
Spranger, Michael  
Sony Computer Science Laboratories Inc.
Beetz, Michael  
University of Bremen

MoA10  
Room 4.L4

WSMFD10 - Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges, Part I (Workshop)

Chair: Rodriguez y Baena, Ferdinando  
Imperial College, London, UK

MoA10.1  
9:00-11:00

Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges*.  
Rodriguez y Baena, Ferdinando  
Imperial College, London, UK
De Momi, Elena  
Politecnico di Milano
Secoli, Riccardo  
Imperial College London

MoA11  
Room 4.R3

WSMFD11 - Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior, Part I (Workshop)

Chair: Stuart, Hannah  
UC Berkeley

MoA11.1  
9:00-11:00

Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior*.  
Stuart, Hannah  
UC Berkeley
Catalano, Manuel Giuseppe  
Istituto Italiano di Tecnologia
Negrello, Francesca  
Istituto Italiano di Tecnologia

MoA12  
Room 4.R5

WSMFD12 - the Intelligence of Touch: Haptics, Tactile, Interaction, Building the Global Picture, Part I (Workshop)

Chair: Castellini, Claudio  
DLR - German Aerospace Center

MoA12.1  
9:00-11:00

The Intelligence of Touch: Haptics, Tactile, Interaction – Building the Global Picture*.  
Castellini, Claudio  
DLR - German Aerospace Center
Beckerle, Philipp  
Technische Universität Darmstadt
Asfour, Tamim  
Karlsruhe Institute of Technology (KIT)

MoA13  
Room 2.L5 KUKA

WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part I (Workshop)

Chair: Shafti, Ali  
Imperial College London

MoA13.1  
9:00-11:00

Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning*.  
Shafti, Ali  
Imperial College London
Calandra, Roberto  
Facebook
Deisenroth, Marc Peter  
Imperial College London
Faisal, Aido  
Imperial College London

MoA14  
Room 1.R4

WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part I (Workshop)

Chair: Salvietti, Gionata  
University of Siena

MoA14.1  
9:00-11:00

User-Centered Methods in Human-Robot Interaction*.  
Salvietti, Gionata  
University of Siena
Beckerle, Philipp  
Technische Universität Darmstadt
Bianchi, Matteo  
University of Pisa

MoA15  
Room 2.R4

WSMFD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part I (Workshop)

Chair: Babel, Marie  
IRISA UMR CNRS 6074 - INRIA - INSA Rennes

MoA15.1  
9:00-11:00

Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*.  
Babel, Marie  
IRISA UMR CNRS 6074 - INRIA - INSA Rennes
Morbidi, Fabio  
Université de Picardie Jules Verne
Daney, David  
Inria Bordeaux - Sud Ouest
Mohammed, Samer  
University Paris Est Créteil, UPEC, France
Colas, Francis  
Inria Nancy Grand Est
Amirat, Yacine  
University of Paris Est Créteil (UPEC)

MoA16  
Room 1.R5

WSMFD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part I (Workshop)

Chair: Mohammed, Samer  
University of Paris Est Créteil - (UPEC)

MoA16.1  
9:00-11:00

RoboAssist 2018 - Wearable Robotics for Motion Assistance and Rehabilitation*.  
Mohammed, Samer  
University of Paris Est Créteil - (UPEC)
Vitiello, Nicola  
Scuola Superiore Sant Anna Moreno, Juan C.  
Cajal Institute, CSIC
Walsh, Conor James  
Harvard University

MoA17  
Room 1.L1

WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part I (Workshop)

Chair: Bozcuoglu, Asil Kaan  
University of Bremen

MoA17.1  
9:00-11:00

Latest Advances in Big Activity Data Sources for Robotics and
New Challenges.

Bozcuoglu, Asil Kaan  
University of Bremen

Asfour, Tamim  
Karlsruhe Institute of Technology (KIT)

Ramirez-Amaro, Karinne  
Institute for Cognitive Systems, Technische Universität München.

Cheng, Gordon  
Technical University of Munich

MoA18 Room 2.L3
WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part I (Workshop)

Chair: Shahbazi Aghbelagh, Mohammad  
Istituto Italiano Di Tecnologia (IT)

09:00-11:00 MoA18.1
Modeling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models.*

Shahbazi Aghbelagh, Mohammad  
Istituto Italiano Di Tecnologia (IT)

Geyer, Hartmut  
Carnegie Mellon University

Kajita, Shuji  
National Inst. of AIST

Tsagarakis, Nikos  
Istituto Italiano di Tecnologia

MoA19 Room 4.R4
WSMAM19 - Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions, Part I (Workshop)

Chair: Kanoulas, Dimitrios  
Istituto Italiano Di Tecnologia

09:00-11:00 MoA19.1
Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions.*

Kanoulas, Dimitrios  
Istituto Italiano Di Tecnologia

Lee, Jinho  
Fondazione Istituto Italiano Di Tecnologia (IT)

Kheddar, Abderrahmane  
CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT

Kakiuchi, Yohei  
The University of Tokyo

MoA20 Room 2.R3
WSMAM20 - 1st Workshop on Proximity Perception in Robotics, Part I (Workshop)

Chair: Escaida Navarro, Stefan  
Inria

09:00-11:00 MoA20.1
1st Workshop on Proximity Perception in Robotics.*

Escaida Navarro, Stefan  
Inria

Mühlbacher-Karrer, Stephan  
JOANNEUM RESEARCH Forschungsgesellschaft mbH - ROBOTICS

Zangl, Hubert  
Graz University of Technology

Hein, Björn  
Karlsruhe Institute of Technology (KIT)

Alagi, Hosam  
Karlsruhe Institute of technology

MoA21 Room 4.R2
WSMFD22 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part I (Workshop)

Chair: Kaboli, Mohsen  
Technical University of Munich (TUM)

09:00-11:00 MoA21.1
RoboTac: New Progress in Tactile Perception and Learning in

Kaboli, Mohsen  
Technical University of Munich (TUM)

Bohg, Jeannette  
Stanford University

Li, Liang  
Bielefeld University

Veiga, Filipe Fernandes  
Technische Universität Darmstadt

Su, Zhe  
University of Southern California

Cheng, Gordon  
Technical University of Munich

MoA22 Room 2.R2
TUTMF01 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part I (Tutorial)

Chair: Muratore, Luca  
Istituto Italiano Di Tecnologia

09:00-11:00 MoA22.1

Muratore, Luca  
Istituto Italiano di Tecnologia

Laurenzi, Arturo  
Istituto Italiano di Tecnologia

Rigano, Giuseppe Francesco  
Istituto Italiano di Tecnologia

Mingo Hoffman, Enrico  
Fondazione Istituto Italiano di Tecnologia

Tsagarakis, Nikos  
Istituto Italiano di Tecnologia

MoA23 Room 4.L1
TUTMAM02 - from Least Squares Regression to High-Dimensional Motion Primitives, Part I (Tutorial)

Chair: Stulp, Freek  
DLR - Deutsches Zentrum für Luft und Raumfahrt e.V.

09:00-11:00 MoA23.1
From Least Squares Regression to High-Dimensional Motion Primitives.*

Stulp, Freek  
DLR - Deutsches Zentrum für Luft- und Raumfahrt e.V.

Calinon, Sylvain  
Idiap Research Institute

Neumann, Gerhard  
University of Lincoln

MoB1 Room 1.L2
WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part II (Workshop)

Chair: Hang, Kaiyu  
Yale University

11:30-13:30 MoB1.1
Examining Sensing Modalities for Robust and Dexterous Object Manipulation.*

Hang, Kaiyu  
Yale University

Ding, Hao  
ABB Corporate Research Center Germany

Li, Miao  
Wuhan University

Kragic, Danica  
KTH

Dollar, Aaron  
Yale University

MoB2 Room 1.L3
WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part II (Workshop)

Chair: Ghalamzan Esfahani, Amir Masoud  
University of Birmingham

11:30-13:30 MoB2.1
Task-Informed Grasping for Rigid and Deformable Object Manipulation.*

Ghalamzan Esfahani, Amir  
University of Birmingham
MoB3 Room 4.L3
WSMF03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part II (Workshop)
Chair: Lanillos, Pablo Technische Universität München
11:30-13:30 MoB3.1
The Utility of Body, Interaction, and Self Learning in Robotics*. 
Lanillos, Pablo Technische Universität München
Hoffmann, Matej Faculty of Electrical Engineering, Czech Technical University in Prague
Tani, Jun Okinawa Institute of Science and Technology
Sandini, Giulio Italian Institute of Technology
Cheng, Gordon Technical University of Munich

MoB4 Room 1.R3
WSMF04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part II (Workshop)
Chair: Cognetti, Marco Centre National De La Recherche Scientifique (CNRS)
11:30-13:30 MoB4.1
Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy*. 
Cognetti, Marco Centre National de la Recherche Scientifique (CNRS)
Ryu, Jee-Hwan Korea Univ. of Tech. and Education
Prattichizzo, Domenico University of Siena
Pacchierotti, Claudio Centre national de la recherche scientifique (CNRS)

MoB5 Room 2.L2
WSMF05 - Controlling Soft Robots: Model-Based vs. Model-Free Approaches, Part II (Workshop)
Chair: Monje, Concepción A. University Carlos III of Madrid
11:30-13:30 MoB5.1
Controlling Soft Robots: Model-Based vs. Model-Free Approaches*. 
Monje, Concepción A. University Carlos III of Madrid
Ott, Christian German Aerospace Center (DLR)
Hauser, Helmut University of Bristol
Laschi, Cecilia Scuola Superiore Sant’Anna

MoB6 Room 1.L5
WSMF06 - towards Robots That Exhibit Manipulation Intelligence, Part II (Workshop)
Chair: Beetz, Michael University of Bremen
11:30-13:30 MoB6.1
Towards Robots That Exhibit Manipulation Intelligence*. 
Beetz, Michael University of Bremen
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<tr>
<th>Workshop Name</th>
<th>Room</th>
<th>Chair(s)</th>
<th>Description</th>
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<td>WSMFD12 - The Intelligence of Touch: Haptics, Tactile, Interaction, Building the Global Picture!, Part II</td>
<td>R4.R5</td>
<td>Castellini, Claudio</td>
<td>DLR - German Aerospace Center</td>
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<td>WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human-Robot In-The-Loop Machine Learning, Part II</td>
<td>2.L5 KUKA</td>
<td>Shafti, Ali</td>
<td>Imperial College London</td>
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<td>WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part II</td>
<td>1.R4</td>
<td>Salvietti, Gionata</td>
<td>University of Siena</td>
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<td>Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*</td>
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<td>Babel, Marie</td>
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<td>Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*</td>
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<td>Morbidi, Fabio</td>
<td>Université de Picardie Jules Verne</td>
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<td>Daney, David</td>
<td>Inria Bordeaux - Sud Ouest</td>
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<td>Colas, Francis</td>
<td>Inria Nancy Grand Est</td>
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<td>Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*</td>
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<td>Amirat, Yacine</td>
<td>University of Paris Est Créteil</td>
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<td>Mohammed, Samer</td>
<td>University of Paris Est Créteil - (UPEC)</td>
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<td>WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part II</td>
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<td>Bozcuoglu, Asil Kaan</td>
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<td>WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part II</td>
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<td>Shahbazi Aghbelagh, Mohammad</td>
<td>Istituto Italiano Di Tecnologia (IIT)</td>
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<td>WSMFD19 - Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions, Part II</td>
<td>4.R4</td>
<td>Kanoulas, Dimitrios</td>
<td>Istituto Italiano Di Tecnologia</td>
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<td>11:30-13:30</td>
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<td>MoB20</td>
<td>1st Workshop on Proximity Perception in Robotics, Part II (Workshop)</td>
<td>Escaida Navarro, Stefan</td>
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<td>Mühlbacher-Karrer, Stephan</td>
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<td>11:30-13:30</td>
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<td>Stulp, Freek</td>
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<td>MoC1.1</td>
<td>Examining Sensing Modalities for Robust and Dexterous Object Manipulation*.</td>
<td>Hang, Kaiyu</td>
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<td>14:30-16:30</td>
<td>MoC2.1</td>
<td>Task-Informed Grasping for Rigid and Deformable Object Manipulation*.</td>
<td>Ghalamzan Esfahani, Amir Masoud</td>
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<td>14:30-16:30</td>
<td>MoC3.1</td>
<td>The Utility of Body, Interaction, and Self Learning in Robotics*.</td>
<td>Lanillos, Pablo</td>
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<td>14:30-16:30</td>
<td>MoC4.1</td>
<td>Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part III (Workshop)</td>
<td>Lanillos, Pablo</td>
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</tbody>
</table>
MoC4.1
Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy.*
Cognetti, Marco Centre National de la Recherche Scientifique (CNRS)
Ryu, Jee-Hwan Korea Univ. of Tech. and Education
Prattichizzo, Domenico University of Siena
Pacchierotti, Claudio Centre national de la recherche scientifique (CNRS)

MoC5.1
Controlling Soft Robots: Model-Based vs. Model-Free Approaches.*
Monje, Concepción A. University Carlos III of Madrid
Ott, Christian German Aerospace Center (DLR)
Hauser, Helmut University of Bristol
Laschi, Cecilia Scuola Superiore Sant'Anna

MoC6.1
Towards Robots That Exhibit Manipulation Intelligence.*
Beetz, Michael University of Bremen
Bartels, Georg Universität Bremen
Khatib, Oussama Stanford University
Albu-Schäffer, Alin DLR - German Aerospace Center
Toussaint, Marc University of Stuttgart

MoC7.1
10th Planning, Perception and Navigation for Intelligent Vehicles (PPNIV ’18), Part III (Workshop)
Chair: Martinet, Philippe INRIA

MoC8.1
Variable Impedance Robot Skills: Control & Learning.*
Abderrahim, Mohamed Carlos III University
Lee, Dongheui Technical University of Munich
Ikeura, Ryojun Mie University

MoC9.1
Language and Robotics.*
Horii, Takato The University of Electro-Communications
Ugur, Emre Bogaziçi University
Taniguchi, Tadahiro Ritsumeikan University
Hinaut, Xavier INRIA
Inamura, Tetsunari National Institute of Informatics
Nagai, Takayuki University of Electro-Communications
Spranger, Michael Sony Computer Science Laboratories Inc.
Beetz, Michael University of Bremen

MoC10.1
Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges, Part III (Workshop)
Chair: Rodríguez y Baena, Ferdinando Imperial College, London, UK
De Momi, Elena Politecnico di Milano
Secoli, Riccardo Imperial College London

MoC11.1
Stuart, Hannah UC Berkeley
Catalano, Manuel Giuseppe Istituto Italiano di Tecnologia
Negrello, Francesca Istituto Italiano di Tecnologia

MoC12.1
The Intelligence of Touch: Haptics, Tactile, Interaction. Building the Global Picture!.*
Castellini, Claudio DLR - German Aerospace Center
Beckerle, Philipp Technische Universität Darmstadt
Asfour, Tamim Karlsruhe Institute of Technology (KIT)
### MoC13
**WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part III (Workshop)**

Chair: Shafti, Ali  
Imperial College London

14:30-16:30  MoC13.1

**Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning**

<table>
<thead>
<tr>
<th>Author</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>Shafti, Ali</td>
<td>Imperial College London</td>
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<tr>
<td>Calandra, Roberto</td>
<td>Facebook</td>
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<tr>
<td>Deisenroth, Marc Peter</td>
<td>Imperial College London</td>
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<tr>
<td>Faisal, Aldo</td>
<td>Imperial College London</td>
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### MoC14
**WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part III (Workshop)**

Chair: Salvietti, Gionata  
University of Siena

14:30-16:30  MoC14.1

**User-Centered Methods in Human-Robot Interaction**

<table>
<thead>
<tr>
<th>Author</th>
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<tbody>
<tr>
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<tr>
<td>Beckerle, Philipp</td>
<td>Technische Universität Darmstadt</td>
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<td>Bianchi, Matteo</td>
<td>University of Pisa</td>
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### MoC15
**WSMFD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part III (Workshop)**

Chair: Babel, Marie  
IRISA UMR CNRS 6074 - INRIA - INSA Rennes

14:30-16:30  MoC15.1

**Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics**

<table>
<thead>
<tr>
<th>Author</th>
<th>Affiliation</th>
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<tr>
<td>Babel, Marie</td>
<td>IRISA UMR CNRS 6074 - INRIA - INSA Rennes</td>
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<tr>
<td>Morbidi, Fabio</td>
<td>Université de Picardie Jules Verne</td>
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<tr>
<td>Daney, David</td>
<td>Inria Bordeaux - Sud Ouest</td>
</tr>
<tr>
<td>Mohammed, Samer</td>
<td>University Paris Est Créteil, UPEC, France</td>
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<tr>
<td>Colas, Francis</td>
<td>Inria Nancy Grand Est</td>
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<tr>
<td>Amirat, Yacine</td>
<td>University of Paris Est Créteil (UPEC)</td>
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### MoC16
**WSMFD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part III (Workshop)**

Chair: Mohammed, Samer  
University of Paris Est Créteil - (UPEC)

14:30-16:30  MoC16.1

**RoboAssist 2018 - Wearable Robotics for Motion Assistance and Rehabilitation**

<table>
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<td>Vitello, Nicola</td>
<td>Scuola Superiore Sant Anna</td>
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<td>Moreno, Juan C.</td>
<td>Cajal Institute, CSIC</td>
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<td>Walsh, Conor James</td>
<td>Harvard University</td>
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### MoC17
**WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part III (Workshop)**

Chair: Bozcuguol, Asil Kaan  
University of Bremen

14:30-16:30  MoC17.1

**Latest Advances in Big Activity Data Sources for Robotics and New Challenges**

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<td>Ramirez-Amaro, Karinne</td>
<td>Institute for Cognitive Systems, Technische Universität München</td>
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<tr>
<td>Cheng, Gordon</td>
<td>Technical University of Munich</td>
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### MoC18
**WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part III (Workshop)**

Chair: Shahbazi Aghbelagh, Mohammad  
Istituto Italiano Di Tecnologia (IIT)

14:30-16:30  MoC18.1

**Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models**

<table>
<thead>
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<tr>
<td>Geyer, Hartmut</td>
<td>Carnegie Mellon University</td>
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<td>Kajita, Shuji</td>
<td>National Inst. of AIST</td>
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<tr>
<td>Tsagarakis, Nikos</td>
<td>Istituto Italiano Di Tecnologia</td>
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### MoC19
**TUTMPM04 - Securing Robotics with SROS2, Part I (Tutorial)**

Chair: White, Ruffin  
University of California San Diego

14:30-16:30  MoC19.1

**Securing Robotics with SROS2**

<table>
<thead>
<tr>
<th>Author</th>
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<tbody>
<tr>
<td>White, Ruffin</td>
<td>University of California San Diego</td>
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<td>Ciaizia, Gianluca</td>
<td>Ca Foscari University of Venice</td>
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<td>Cortesi, Agostino</td>
<td>Università Ca’ Foscari Venezia</td>
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<tr>
<td>Christensen, Henrik Iskov</td>
<td>UC San Diego</td>
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### MoC20
**WSMPM21 - from Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds, Part I (Workshop)**

Chair: Pettre, Julien  
Inria - Irisa

14:30-16:30  MoC20.1

**From Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds**

<table>
<thead>
<tr>
<th>Author</th>
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<tr>
<td>Pettre, Julien</td>
<td>INRIA - IRISA</td>
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<tr>
<td>Hayet, Jean-Bernard</td>
<td>CIMAT</td>
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<tr>
<td>Babel, Marie</td>
<td>IRISA UMR CNRS 6074 - INRIA - INSA Rennes</td>
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<td>Salaris, Paolo</td>
<td>INRIA -- Sophia Antipolis</td>
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<tr>
<td>Salvini, Pericle</td>
<td>EPFL, Ecole Polytechnique Federale de Lausanne</td>
</tr>
</tbody>
</table>

### MoC21
**WSMFD22 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part III (Workshop)**

Chair: Kaboli, Mohsen  
Technical University of Munich
**MoC21.1**

**RoboTac: New Progress in Tactile Perception and Learning in Robotics**

Kaboli, Mohsen  
Technical University of Munich (TUM)

Bohg, Jeannette  
Stanford University

Li, Qiang  
Bielefeld University

Veiga, Filipe Fernandes  
Technische Universität Darmstadt

Su, Zhe  
University of Southern California

Cheng, Gordon  
Technical University of Munich

**MoC22**

**TUTMFD01 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part III (Tutorial)**

Chair: Muratore, Luca  
Istituto Italiano Di Tecnologia

14:30-16:30 MoC22.1

A Hands-On Tutorial on XBotCore – a Real-Time Cross-Robot and Cross-Framework Software Architecture*

Muratore, Luca  
Istituto Italiano Di Tecnologia

Laurenzi, Arturo  
Istituto Italiano Di Tecnologia

Rigano, Giuseppe Francesco  
Istituto Italiano Di Tecnologia

Mingo Hoffman, Enrico  
Fondazione Istituto Italiano di Tecnologia

Tsagarakis, Nikos  
Istituto Italiano Di Tecnologia

**MoC23**

**TUTMPM03 - Creating and Understanding 3D Annotated Scene Meshes, Part I (Tutorial)**

Chair: Zhang, Zhiyuan  
Singapore University of Technology and Design

14:30-16:30 MoC23.1

Creating and Understanding 3D Annotated Scene Meshes*

Zhang, Zhiyuan  
Singapore University of Technology and Design

Hua, Binh-Son  
The University of Tokyo

Nguyen, Duc Thanh  
Deakin University

Yu, Lap-Fai  
University of Massachusetts Boston

Yeung, Sai-Kit  
Singapore University of Technology and Design

Rus, Daniela  
MIT

**MoD1**

**WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part IV (Workshop)**

Chair: Hang, Kaiyu  
Yale University

17:00-19:00 MoD1.1

Examining Sensing Modalities for Robust and Dexterous Object Manipulation*

Hang, Kaiyu  
Yale University

Ding, Hao  
ABB Corporate Research Center Germany

Li, Miao  
Wuhan University

Kragic, Danica  
KTH

Dollar, Aaron  
Yale University

**WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part IV (Workshop)**

Chair: Ghalamzan Esfahani, Amir Masoud  
University of Birmingham

17:00-19:00 MoD2.1

Task-Informed Grasping for Rigid and Deformable Object Manipulation*

Ghalamzan Esfahani, Amir Masoud  
University of Birmingham

Alambeigi, Farshid  
Johns Hopkins University

Aghajani Pedram, Sahba  
University of California, Los Angeles

Detry, Renaud  
Jet Propulsion Laboratory

Santos, Veronica J.  
University of California, Los Angeles

Stolkin, Rustam  
University of Birmingham

**MoD3**

**WSMFD03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part IV (Workshop)**

Chair: Lanillos, Pablo  
Technische Universität München

17:00-19:00 MoD3.1

The Utility of Body, Interaction, and Self Learning in Robotics*

Lanillos, Pablo  
Technische Universität München

Hoffmann, Matej  
Faculty of Electrical Engineering, Czech Technical University in Prague

Tani, Jun  
Okinawa Institute of Science and Technology

Sandini, Giulio  
Italian Institute of Technology

Cheng, Gordon  
Technical University of Munich

**MoD4**

**WSMFD04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part IV (Workshop)**

Chair: Cognetti, Marco  
Centre National De La Recherche Scientifique (CNRS)

17:00-19:00 MoD4.1

Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy*

Cognetti, Marco  
Centre National De La Recherche Scientifique (CNRS)

Ryu, Jee-Hwan  
Korea Univ. of Tech. and Education

Prattichizzo, Domenico  
University of Siena

Pacchierotti, Claudio  
Centre national de la recherche scientifique (CNRS)

**MoD5**

**WSMFD05 - Controlling Soft Robots: Model-Based vs. Model-Free Approaches, Part IV (Workshop)**

Chair: Monje, Concepción A.  
University Carlos III of Madrid

17:00-19:00 MoD5.1

Controlling Soft Robots: Model-Based vs. Model-Free Approaches*

Monje, Concepción A.  
University Carlos III of Madrid

Ott, Christian  
German Aerospace Center (DLR)

Hauser, Helmut  
University of Bristol

Laschi, Cecilia  
Scuola Superiore Sant’Anna
**MoD6**

WSMFD06 - towards Robots That Exhibit Manipulation Intelligence, Part IV (Workshop)

Chair: Beetz, Michael
University of Bremen

17:00-19:00 MoD6.1

Towards Robots That Exhibit Manipulation Intelligence*.

Beetz, Michael
University of Bremen
Bartels, Georg
Universität Bremen
Khatib, Oussama
Stanford University
Albu-Schäffer, Alin
DLR - German Aerospace Center
Toussaint, Marc
University of Stuttgart

**MoD7**

WSMFD07 - Planning, Perception and Navigation for Intelligent Vehicles (PPNIV’18), Part IV (Workshop)

Chair: Martinet, Philippe
INRIA

17:00-19:00 MoD7.1

10th Planning, Perception and Navigation for Intelligent Vehicles (PPNIV’18)*.

Martinet, Philippe
INRIA
Laugier, Christian
INRIA
Stiller, Christoph
Karlsruhe Institute of Technology
Nunes, Urbano
Instituto de Sistemas e Robotica
Sotelo Vázquez, Miguel
University of Alcalá

**MoD8**

WSMFD08 - Variable Impedance Robot Skills: Control & Learning, Part IV (Workshop)

Chair: Abu-Dakka, Fares J.
Istituto Italiano Di Tecnologia

17:00-19:00 MoD8.1

Variable Impedance Robot Skills: Control & Learning*.

Abu-Dakka, Fares J.
Istituto Italiano Di Tecnologia
Abderrahim, Mohamed
Carlos III University
Lee, Dongheui
Technical University of Munich
Ikeura, Ryojun
Mie University

**MoD9**

WSMFD09 - Language and Robotics, Part IV (Workshop)

Chair: Horii, Takato
The University of Electro-Communications

17:00-19:00 MoD9.1

Language and Robotics*.

Horii, Takato
The University of Electro-Communications
Ugur, Emre
Bogazici University
Taniguchi, Tadahiro
Ritsumeikan University
Hinaut, Xavier
INRIA
Inamura, Tetsunari
National Institute of Informatics
Nagai, Takayuki
University of Electro-Communications
Spranger, Michael
Sony Computer Science Laboratories Inc.
Beetz, Michael
University of Bremen

**MoD10**

WSMFD10 - Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges, Part IV (Workshop)

Chair: Rodríguez y Baena, Imperial College, London, UK
Ferdinando

17:00-19:00 MoD10.1

Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges*.

Rodríguez y Baena, Imperial College, London, UK
Ferdinando
De Momi, Elena
Politecnico di Milano
Secoli, Riccardo
Imperial College London

**MoD11**

WSMFD11 - Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior, Part IV (Workshop)

Chair: Stuart, Hannah
UC Berkeley

17:00-19:00 MoD11.1

Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior*.

Stuart, Hannah
UC Berkeley
Catalano, Manuel Giuseppe
Istituto Italiano di Tecnologia
Negrello, Francesca
Istituto Italiano di Tecnologia

**MoD12**

WSMFD12 - the Intelligence of Touch: Haptics, Tactile, Interaction. Building the Global Picture!, Part IV (Workshop)

Chair: Castellini, Claudio
DLR - German Aerospace Center

17:00-19:00 MoD12.1

The Intelligence of Touch: Haptics, Tactile, Interaction – Building the Global Picture*.

Castellini, Claudio
DLR - German Aerospace Center
Beckerle, Philipp
Technische Universität Darmstadt
Asfour, Tamim
Karlsruhe Institute of Technology (KIT)

**MoD13**

WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part IV (Workshop)

Chair: Shafti, Ali
Imperial College London

17:00-19:00 MoD13.1

Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning*.

Shafti, Ali
Imperial College London
Calandra, Roberto
Facebook
Deisenroth, Marc Peter
Imperial College London
Faisal, Aido
Imperial College London

**MoD14**

WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part IV (Workshop)

Chair: Salvietti, Gionata
University of Siena

17:00-19:00 MoD14.1

User-Centered Methods in Human-Robot Interaction*.

Salvietti, Gionata
University of Siena
Beckerle, Philipp
Technische Universität Darmstadt
Bianchi, Matteo
University of Pisa
<table>
<thead>
<tr>
<th>Workshop</th>
<th>Room</th>
<th>Start Time</th>
<th>End Time</th>
<th>Chair(s)</th>
<th>Organization(s)</th>
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<tbody>
<tr>
<td>MoD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part IV (Workshop)</td>
<td>2.R4</td>
<td>17:00</td>
<td>19:00</td>
<td>Babel, Marie</td>
<td>IRISA UMR CNRS 6074 - INRIA - INSA Rennes</td>
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<tr>
<td>MoD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part IV (Workshop)</td>
<td>1.R5</td>
<td>17:00</td>
<td>19:00</td>
<td>Mohammed, Samer</td>
<td>University of Paris Est Créteil (UPEC)</td>
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<tr>
<td>MoD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part IV (Workshop)</td>
<td>1.L1</td>
<td>17:00</td>
<td>19:00</td>
<td>Bozcuoglu, Asli Kaan</td>
<td>University of Bremen</td>
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<td>MoD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part IV (Workshop)</td>
<td>2.L3</td>
<td>17:00</td>
<td>19:00</td>
<td>Shahbazi Aghbelagh, Mohammad</td>
<td>Istituto Italiano Di Tecnologia (IIT)</td>
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<tr>
<td>MoD19 - Securing Robotics with SROS2, Part II (Tutorial)</td>
<td>4.R4</td>
<td>17:00</td>
<td>19:00</td>
<td>White, Ruffin</td>
<td>University of California San Diego</td>
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<tr>
<td>MoD20 - from Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds, Part II (Workshop)</td>
<td>2.R3</td>
<td>17:00</td>
<td>19:00</td>
<td>Pettre, Julien</td>
<td>Inria - Irisa</td>
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<tr>
<td>MoD21 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part IV (Workshop)</td>
<td>4.R2</td>
<td>17:00</td>
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<td>Kaboli, Mohsen</td>
<td>Technical University of Munich (TUM)</td>
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<tr>
<td>MoD22 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part IV (Tutorial)</td>
<td>2.R2</td>
<td>17:00</td>
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<td>Muratore, Luca</td>
<td>Istituto Italiano Di Tecnologia</td>
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<tr>
<td>Chair: Zhang, Zhiyuan</td>
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<td>Rus, Daniela</td>
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</table>
Technical Program for Tuesday October 2, 2018

TuATS1 Room 1.L5
Deep Learning I (Regular session)
Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Estimation

Long-Term Semantic Mapping with 3D-Lidar Data

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Paired Recurrent Autoencoders for Bidirectional Translation between Robot Actions and Linguistic Descriptions, N/A.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Learning Context Flexible Attention Model for Long-Term Visual Place Recognition, N/A.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1


Suárez Canosa, Iago Universidad Politécnica De Madrid
09:15-09:20 TuATS.1.2

Detection-Tracking for Efficient Person Analysis: The DetTA Pipeline

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

3D Human Pose Estimation on a Configurable Bed from a Pressure Image, pp. 54-61.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Real-Time Convolutional Networks for Depth-Based Human Pose Estimation, pp. 41-47.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Optimized Contrast Enhancements to Improve Robustness of Visual Tracking in a SLAM Relocalisation Context, pp. 103-108.

Wang, Xi INRIA Rennes, IRISA
09:15-09:20 TuATS.1.2

Real-Time Convolutional Networks for Depth-Based Human Pose Estimation, pp. 41-47.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Optimized Contrast Enhancements to Improve Robustness of Visual Tracking in a SLAM Relocalisation Context, pp. 103-108.

Wang, Xi INRIA Rennes, IRISA
09:15-09:20 TuATS.1.2

Detection-Tracking for Efficient Person Analysis: The DetTA Pipeline

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

3D Human Pose Estimation on a Configurable Bed from a Pressure Image, pp. 54-61.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Real-Time Convolutional Networks for Depth-Based Human Pose Estimation, pp. 41-47.

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

Optimized Contrast Enhancements to Improve Robustness of Visual Tracking in a SLAM Relocalisation Context, pp. 103-108.

Wang, Xi INRIA Rennes, IRISA
09:15-09:20 TuATS.1.2

Detection-Tracking for Efficient Person Analysis: The DetTA Pipeline

Co-Chair: Pucci, Daniele Italian Institute of Technology
09:00-09:03 TuATS.1.1

3D Human Pose Estimation on a Configurable Bed from a Pressure Image, pp. 54-61.

Fu, Wei-Kang
Department of Computer Science and Information Engineering, National Taiwan University
Lin, Kun-Li
National Taiwan University
Shih, Chi-Sheng
National Taiwan University

TuATS3
Localization and Mapping I (Regular session)
Room 1.L2
Chair: Amigoni, Francesco
Politecnico Di Milano
Co-Chair: Choi, Hyun-Taek
Korea Institute of Ocean Science and Technology

09:00-09:03 TuATS3.1
Kim, Jung-Hee
Korea Institute of Ocean Science and Technology
Kim, Deok
KIST

09:03-09:06 TuATS3.2
LIPS: LiDAR-Inertial 3D Plane SLAM, pp. 123-130.
Geneva, Patrick
University of Delaware
Eckenhoff, Kevin
University of Delaware
Yang, Yulin
University of Delaware
Huang, Guoquan
University of Delaware

09:06-09:09 TuATS3.3
Scan Similarity-Based Pose Graph Construction Method for Graph SLAM, pp. 131-136.
Yoo, Wonsook
Seoul National University
Kim, Hanjun
Automation and Systems Research Institute (ASRI), Department Of
Hong, Hyunki
Seoul National University
Lee, Beom-Hee
Seoul National University

09:09-09:12 TuATS3.4
Egocentric Spatial Memory, pp. 137-144.
Zhang, Mengmi
National University of Singapore
Ma, Keng Teck
“A”i, Scei, A”star
Lim, Joo Hwee
12R A”STAR
Yen, Shih-Cheng
National University of Singapore
Zhao, Qi
University of Minnesota
Feng, Jiashi
National University of Singapore

09:12-09:15 TuATS3.5
Predicting Objective Function Change in Pose-Graph Optimization, pp. 145-152.
Bai, Fang
University of Technology, Sydney
Vidal-Callegger, Teresa A.
University of Technology Sydney
Huang, Shoudong
University of Technology, Sydney
Xiong, Rong
Zhejiang University

09:15-09:18 TuATS3.6
Lazar, Maria Teresa
Sapienza University of Rome
Capobianco, Roberto
Sapienza University of Rome
Grisetti, Giorgio
Sapienza University of Rome

09:18-09:21 TuATS3.7

TuATS4
Humanoid Robots I (Regular session)
Room 2.L2
Chair: Takanishi, Atsuo
Waseda University
Co-Chair: Werner, Alexander
University of Waterloo

09:00-09:03 TuATS4.1
Fast Kinodynamic Bipedal Locomotion Planning with Moving Obstacles, pp. 177-184.
Ahn, Junhyeok
University of Texas at Austin
Campbell IV, Orion
University of Texas at Austin
Kim, Donghyun
University of Texas at Austin
Sentis, Luis
The University of Texas at Austin

09:03-09:06 TuATS4.2
Deng, Xiang
ETH Zurich
Lee, Daniel
Cornell Tech

09:06-09:09 TuATS4.3
Passivity Analysis and Control of Humanoid Robots on Movable Ground, N/A.
Henze, Bernd
German Aerospace Center (DLR)
Balachandran, Ribin
DLR
Roa, Maximo A.
DLR - German Aerospace Center
Ott, Christian
German Aerospace Center (DLR)
Albu-Schäffer, Alin
German Aerospace Center

09:09-09:12 TuATS4.4
Extended 3D Walking and Skating Motion Generation for Multiple Non-Coplanar Contacts with Anisotropic Friction: Application to Walking and Skateboarding and Roller Skating, N/A.
Takasugi, Noriaki
The University of Tokyo
Kojima, Kunio
The University of Tokyo
Sugai, Fumihito
The University of Tokyo
Nozawa, Shunichi
The University of Tokyo
Kakikuchi, Yohei
The University of Tokyo
Okada, Kei
The University of Tokyo
Inaba, Masayuki
The University of Tokyo

09:12-09:15 TuATS4.5
Nonlinear State Estimation for Humanoid Robot Walking, N/A.
Piperakis, Stylianos
Foundation for Research and Technology – Hellas (FORTH)
Koskinopoulos, Maria
Foundation for Research and Technology – Hellas (FORTH)
Trahanias, Panos
Foundation for Research and Technology – Hellas (FORTH)

09:15-09:18 TuATS4.6
Convex Properties of Center-Of-Mass Trajectories for Locomotion Based on Divergent Component of Motion, N/A.
Mesesan, George
German Aerospace Center (DLR)
Dynamic Bilateral Teleoperation of the Cart-Pole: A Study towards the Synchronization of Human Operator and Legged Robot, N/A.

Ramos, Joao
Massachusetts Institute of Technology

Kim, Sangbae
Massachusetts Institute of Technology

09:21-09:24
TuATS4.8

Self-Synchronization and Self-Stabilization of Walking Gaits Modeled by the 3D LIP Model, N/A.

Luo, Qiuyue
Centrale Nantes
De Leon Gomez, Victor
Laboratoire Des Sciences Du Numérique De Nantes (LS2N)
Kalouguine, Anne
Softbank Robotics
Chevallereau, Christine
CNRS
Aoustin, Yannick
CNRS

09:21-09:24
TuATS4.8

Medical Robots I (Regular session) Room 2.R3

Chair: Wurdemann, Helge
University College London
Anne
Co-Chair: Garcia-Aracil, Nicolas
Universidad Miguel Hernandez De Elche

09:00-09:03
TuATS5.1

Classification of EEG Signals for a Hypnotrack BCI System, pp. 240-245.

Alimardani, Maryam
Tilburg University
Keshmiri, Soheil
Advanced Telecommunications Research Institute International (ATR)
Sumioka, Hidenobu
ATR
Hiraki, Kazuo
University of Tokyo

09:03-09:06
TuATS5.2

Independent Control of Multiple Degrees of Freedom Local Magnetic Actuators with Magnetic Cross-Coupling Compensation, N/A.

Scaglioni, Bruno
University of Leeds
Fornarelli, Nicola
Università Di Pisa
Garbin, Nicolo
Vanderbilt University
Menciassi, Arianna
Scuola Superiore Sant’Anna - SSSA
Valdastri, Pietro
University of Leeds

09:06-09:09
TuATS5.3

Towards the Development of a Steerable and MRI-Compatible Cardiac Catheter for Atrial Fibrillation Treatment, N/A.

Sheng, Jun
Georgia Institute of Technology
Wang, Xuelong
Georgia Institute of Technology
Dickfeld, Timm-Michael
University of Maryland Medical Center
Desai, Jaydev P.
Georgia Institute of Technology

09:09-09:12
TuATS5.4

State Estimation Using the CoG Candidates for Sit-To-Stand Support System User, N/A.

Takeda, Mizuki
Tohoku University
Hirata, Yasuhisa
Tohoku University
Katayama, Takahiro
RT.WORKS

Mizuta, Yasuhide
RT.WORKS
Koujina, Atsushi
RT.WORKS

09:12-09:15
TuATS5.5

Real-Time Control of Whole-Body Robot Motion and Trajectory Generation for Physiotherapeutic Juggling in VR, pp. 270-277.

Mohammadi, Pouya
Braunschweig University of Technology
Malekzadeh, Milad S.
Technical University of Braunschweig, IRP
Kodl, Jindrich
Hertie Institute for Clinical Brain Research / Centre for Integr
Mukovskiy, Albert
Hertie Institute for Clinical Brain Research, CIN, University Of
Wigand, Dennis
Bielefeld University
Giese, Martin
Hertie Institute for Clinical Brain Research / Center for Integr
Steil, Jochen J.
Technische Universität Braunschweig

09:15-09:18
TuATS5.6


Yu, Yashen
National Chiao Tung University
Kuo, Robert
National Chiao Tung University
Wu, Mu-Chien
National Chiao Tung University
Wu, Jong-Shinn
National Chiao Tung University
Tsai, Chia-Hung Dylan
National Chiao Tung University

09:18-09:21
TuATS5.7


Eppe, Manfred
University of Hamburg
Kerzel, Matthias
Uni Hamburg
Strahl, Erik
Universität Hamburg
Wermet, Stefan
University of Hamburg

09:21-09:24
TuATS5.8


Fosch-Villaronga, Eduard
Microsoft Cloud Computing Research Center & Queen Mary Universit
Felzmann, Heike
NUI Galway, Galway, Ireland
Ramos-Montero, Maria
Ortelio Ltd., Coventry, United Kingdom
Mahler, Tobias
University of Oslo, Norway

TuATS6 Room 1.L3

Social Robots (Regular session)

Chair: Salichs, Miguel A.
University Carlos III of Madrid
Co-Chair: Hanheide, Marc
University of Lincoln

09:00-09:03
TuATS6.1

Towards Norm Realization in Institutions Mediating Human-Robot Societies, pp. 297-304.

Wasik, Alicja
EPFL
Lima, Pedro U.
Instituto Superior Técnico - Institute for Systems and Robotics
Saffiotti, Alessandro
Orebro University
Martinoi, Acherio
EPFL
Pecora, Federico
Örebro University
Tomic, Stevan
Orebro University

09:03-09:06
TuATS6.2
Yim, Sojung Seoul National University
Baek, Sang-Min Seoul National University
Jung, Gwang-Pil SeoulTech
Cho, Kyu-Jin Seoul National University, Biorobotics Laboratory

09:03-09:06 TuATS8.2

Delineating Boundaries of Feasibility between Robot Designs, pp. 422-429.
Ghasemlou, Shervin University of South Carolina
O’Kane, Jason University of South Carolina
Shell, Dylan Texas A&M University

09:06-09:09 TuATS8.3

Eckenstein, Nick University of Pennsylvania
Yim, Mark University of Pennsylvania

09:09-09:12 TuATS8.4

An Origami-Inspired Flexible Pneumatic Actuator, pp. 436-441.
Schmitt, François ICube, University of Strasbourg
Piccin, Olivier ICube-AVR
Barbè, Laurent University of Strasbourg, ICUBE CNRS
Bayle, Bernard University of Strasbourg

09:12-09:15 TuATS8.5

Design and Development of Biaxial Active Nozzle with Flexible Flow Channel for Air Floating Active Scope Camera, pp. 442-449.
Ishii, Akihiro Tohoku University
Ambe, Yuichi Tohoku University
Yamauchi, Yu Tohoku University
Ando, Hisato Tohoku University
Kono, Masashi Tohoku University
Tadakuma, Kenjiro Tohoku University
Tadokoro, Satoshi Tohoku University

09:15-09:18 TuATS8.6

Design and Implementation of Programmable Drawing Automata Based on Cam Mechanisms for Representing Spatial Trajectory, pp. 450-455.
Takahashi, Takuto Waseda University
Okuno, Hiroshi G. Waseda University

09:18-09:21 TuATS8.7

The Seednoid Robot Platform: Designing a Multi-Purpose Compact Robot from Continuous Evaluation and Lessons from Competitions, N/A.
Sasabuchi, Kazuhiro University of Tokyo
Yaguchi, Hiroaki The University of Tokyo
Nagahama, Kotaro Shinshu University
Hori, Shintaro The University of Tokyo
Mizohata, Hiroto University of Tokyo
Inaba, Masayuki The University of Tokyo

09:21-09:24 TuATS8.8

Sedal, Audrey University of Michigan
Fisher, Michael University of Michigan
Bishop-Moser, Josh ElastoRobotics
Wineman, Alan University of Michigan
Kota, Sridhar University of Michigan

09:24-09:27 TuATS8.9

TuATS9 Room 4.L1

Special Session: Methods and Algorithms for Automatic Manipulation of Deformable Objects (Regular session)
Chair: Navarro-Alarcon, David Hong Kong Polytechnic University
Co-Chair: Cherubini, Andrea LIIRMM - Universite De Montpellier CNRS

09:00-09:03 TuATS9.1

Wang, Zerui The Chinese University of Hong Kong
Li, Xiang The Chinese University of Hong Kong
Navarro-Alarcon, David Hong Kong Polytechnic University
Liu, Yunhui Chinese University of Hong Kong

09:03-09:06 TuATS9.2

Dual-Arm Robotic Manipulation of Flexible Cables (I), pp. 479-484.
Zhu, Jihong LIIRMM
Navarro, Benjamin University of Orleans
Fraisse, Philippe LIIRMM
Crosnier, André LIIRMM
Cherubini, Andrea LIIRMM - Universite De Montpellier CNRS

09:06-09:09 TuATS9.3

Cherubini, Andrea LIIRMM - Universite De Montpellier CNRS
Leitner, Jurgen Australian Centre for Robotic Vision / Queensland University of Technology
Ortenzi, Valerio Queensland University of Technology / ACRV
Corke, Peter Queensland University of Technology

09:09-09:12 TuATS9.4

Capturing Deformations of Interacting Non-Rigid Objects Using RGB-D Data (I), pp. 491-497.
Petit, Antoine Inria
Colin, Stephane INRIA
Lippiello, Vincenzo University of Naples FEDERICO 2
Siciliano, Bruno Univ. Napoli Federico II

09:12-09:15 TuATS9.5

Contact Detection and Size Estimation Using a Modular Soft Gripper with Embedded Flex Sensors (I), pp. 498-503.
Eigeneidy, Khaled University of Lincoln
Neumann, Gerhard University of Lincoln
Pearson, Simon University of Lincoln
Jackson, Mike Loughborough University
Lohse, Niels Loughborough University, EPSRC Centre for Innovative Manufacturing

09:15-09:18 TuATS9.6

Online Shape Estimation Based on Tactile Sensing and Deformation Modeling for Robot Manipulation (I), pp. 504-511.
Sanchez, Jose Manuel Institut Pascal, UMR 6602 - UCA/CNRS/SIGMA
Mateo, Carlos M. University of Alicante
Corrales Ramon, Juan Sigma-Clermont Engineering
A Bio-Inspired Reinforcement Learning Rule to Optimise Dynamical Neural Networks for Robot Control, pp. 556-561.
Wei, Tianqi University of Edinburgh

10:12-10:15 TuBTS1.5

High-Frame-Rate Target Tracking with CNN-Based Object Recognition, pp. 599-606.
Jiang, Mingjun Hiroshima University

10:06-10:09 TuBTS2.3

Deep Neural Network-Based Cooperative Visual Tracking through Multiple Micro Aerial Vehicles, N.A.
Price, Eric Max Planck Institute for Intelligent Systems
Lawless, Guillerme Institute for Systems and Robotics, Institute Superior Tecnio, Max Planck-Institute for Intelligent Systems
Ludwig, Roman Max Planck Institute for Intelligent Systems
Martinovic, Igor Max Planck Institute for Intelligent Systems
Buehler, Heinrich H. Max Planck Institute for Biology of Cynergetics
Black, Michael Max Planck Institute for Intelligent Systems in Tübingen
Ahmad, Aamir Max Planck Institute for Intelligent Systems

10:03-10:10 TuBTS2.2

Asynchronous Corner Detection and Tracking for Event Cameras in Real-Time, N.A.
Alzugaray, Ignacio ETH Zürich
Chili, Margarita ETH Zürich

10:00-10:03 TuBTS2.1

Visual-To-Real-World Transfer Learning for Robots on Wilderness Trails, pp. 576-582.
Iuzzolino, Michael Louis University of Colorado Boulder
Walker, Michael University of Colorado Boulder
Szafr, Daniel J. University of Colorado Boulder

10:21-10:24 TuBTS1.8

TuBTS2 (Regular session) Room 2.L5 KUKA
Chair: Montano, Luis Universidad De Zaragoza
Co-Chair: Ahmad, Aamir Max Planck Institute for Intelligent Systems

10:00-10:10 TuBTS1.1

Learning Symbolic Representations for Planning with Parameterized Skills, pp. 526-533.
Ames, Barrett Duke University
Thackston, Allison Oceanerine Space Systems
Konidaris, George Brown University

10:00-10:03 TuBTS1.1

Regularizing Reinforcement Learning with State Abstraction, pp. 534-539.
Akour, Riad TU Darmstadt
Veiga, Filipe Fernandes Technische Universität Darmstadt
Peters, Jan Technische Universität Darmstadt
Neumann, Gerhard University of Lincoln

10:03-10:06 TuBTS1.2

Spek, Andrew Monash University
Dharmasiri, Thanuja Monash University
Drummond, Tom Monash University

10:06-10:09 TuBTS1.3

Kohari, Yoshiki Toyoohashi University of Technology
Miura, Jun Toyoohashi University of Technology
Oishi, Shuji National Institute of Advanced Industrial Science and Technology

10:09:10:12 TuBTS1.4

10:12-10:15 TuBTS1.5

A Bio-Inspired Reinforcement Learning Rule to Optimise Dynamical Neural Networks for Robot Control, pp. 556-561.
Wei, Tianqi University of Edinburgh

10:12-10:15 TuBTS1.5

Variational Autoencoder for End-To-End Control of Autonomous Driving with Novelty Detection and Training De-Biasing, pp. 568-575.
Amin, Alexander Massachusetts Institute of Technology
Schwartz, Wilko Massachusetts Institute of Technology (MIT)
Rosman, Guy Massachusetts Institute of Technology (MIT)
Araki, Brandon MIT
Karaman, Sertac Massachusetts Institute of Technology
Rus, Daniela MIT

10:18-10:21 TuBTS1.7

TuBTS1 (Regular session) Room 1.L5
Deep Learning II (Regular session)
Co-Chair: Neumann, Gerhard University of Lincoln

10:00-10:03 TuBTS1.1

Learning Symbolic Representations for Planning with Parameterized Skills, pp. 526-533.
Ames, Barrett Duke University
Thackston, Allison Oceanerine Space Systems
Konidaris, George Brown University

10:00-10:03 TuBTS1.1

Regularizing Reinforcement Learning with State Abstraction, pp. 534-539.
Akour, Riad TU Darmstadt
Veiga, Filipe Fernandes Technische Universität Darmstadt
Peters, Jan Technische Universität Darmstadt
Neumann, Gerhard University of Lincoln

10:03-10:06 TuBTS1.2

Spek, Andrew Monash University
Dharmasiri, Thanuja Monash University
Drummond, Tom Monash University

10:06-10:09 TuBTS1.3

Kohari, Yoshiki Toyoohashi University of Technology
Miura, Jun Toyoohashi University of Technology
Oishi, Shuji National Institute of Advanced Industrial Science and Technology

10:09:10:12 TuBTS1.4

10:12-10:15 TuBTS1.5

A Bio-Inspired Reinforcement Learning Rule to Optimise Dynamical Neural Networks for Robot Control, pp. 556-561.
Wei, Tianqi University of Edinburgh

10:12-10:15 TuBTS1.5

Teaching Robots to Predict Human Motion, pp. 562-567.
Gui, Liang-Yan Carnegie Mellon University
Zhang, Kevin Carnegie Mellon University
Wang, Yu-Xiong Carnegie Mellon University
Liang, Xiaodan Carnegie Mellon University
Moura, José M. F. Carnegie Mellon University
Veloso, Manuela Carnegie Mellon University

10:15-10:18 TuBTS1.6

TuBTS1.8

Virtual-To-Real-World Transfer Learning for Robots on Wilderness Trails, pp. 576-582.
Iuzzolino, Michael Louis University of Colorado Boulder
Walker, Michael University of Colorado Boulder
Szafr, Daniel J. University of Colorado Boulder

10:21-10:24 TuBTS1.8
Gu, Yihao Hiroshima University
Takaki, Takeshi Hiroshima University
Ishii, Idaku Hiroshima University

10:09-10:12 TuBTS2.4
Real-Time Edge Template Tracking Via Homography Estimation, pp. 607-612.
Qin, Xuebin University of Alberta
He, Shida University of Alberta
Zhang, Zichen University of Alberta, Canada
Dehghan, Masood University of Alberta
Jin, Jun University of Alberta
Jagersand, Martin University of Alberta

Brossard, Martin Mines ParisTech
Bonnabel, Silvere Mines ParisTech
Barrau, Axel Safran

10:06-10:09 TuBTS3.3
Gu, Shuxia Zhejiang University
Xiang, Zhiyu Zhejiang University
Zhang, Yi Zhejiang University
Qian, Qi Zhejiang University

10:09-10:12 TuBTS3.4
Courteous Autonomous Cars, pp. 663-670.
Sun, Liting University of California, Berkeley
Zhan, Wei University of California, Berkeley
Tomizuka, Masayoshi University of California
Dragan, Anca University of California Berkeley

10:12-10:15 TuBTS3.5
Joint Egomotion Estimation Using a Laser Scanner and a Monocular Camera through Relative Orientation Estimation and 1-DoF ICP, pp. 671-676.
Huang, Kaihong University of Bonn
Stachniss, Cyrill University of Bonn

10:15-10:18 TuBTS3.6
Dymczyk, Marcin Tomasz ETH Zurich, Autonomous Systems Lab
Gilitzschenski, Igor Massachusetts Institute of Technology
Nieto, Juan ETH Zürich
Lynen, Simon ETH Zurich
Zeisl, Bernhard Google
Siegwart, Roland ETH Zurich

10:18-10:21 TuBTS3.7
Fire-Aware Planning of Aerial Trajectories and Ignitions, pp. 685-692.
Beachly, Evan Drone Amplified
Detweiler, Carrick University of Nebraska-Lincoln
Elbaum, Sebastian University of Nebraska - Lincoln
Duncan, Brittany University of Nebraska, Lincoln
Hilderbrandt, Carl University of Nebraska - Lincoln
Twidwell, Dirac University of Nebraska, Lincoln
Allen, Craig University of Nebraska - Lincoln

10:21-10:24 TuBTS3.8
Cheng, Hui Sun Yat-Sen University
Zheng, Zhuoqi Sun Yat-Sen University
He, Jinhao Sun Yat-Sen University
Chen, Chongyu Sun Yat-Sen University
Wang, Keze Sun Yat-Sen University
Lin, Liang Sun Yat-Sen University

TuBTS3
Localization and Mapping II (Regular session)
Chair: Moon, Hyungpil Sungkyunkwan University
Co-Chair: Sun, Li University of Birmingham

10:00-10:03 TuBTS3.1
Rypkema, Nicholas Massachusetts Institute of Technology
Rahardiyanto Technology Fischell, Erin Marie Woods Hole Oceanographic Institution
Schmidt, Henrik Massachusetts Institute of Technology

TuBTS4
Humanoid Robots II (Regular session)
Chair: Goodwine, Bill University of Notre Dame
Co-Chair: Tsagarakis, Nikos Istituto Italiano Di Tecnologia

10:00-10:03 TuBTS4.1
### TuBTS4.2


- Bando, Masahiro, The University of Tokyo
- Murooka, Masaki, The University of Tokyo
- Nozawa, Shunichi, The University of Tokyo
- Okada, Kei, The University of Tokyo
- Inaba, Masayuki, The University of Tokyo


- Kumagai, Iori, National Inst. of AIST
- Morisawa, Mitsuharu, National Inst. of AIST
- Nakaoka, Shin’ichi, AIST
- Sakaguchi, Takeshi, AIST
- Kaminaga, Hiroshi, National Institute of Advanced Industrial Science and Technology
- Kaneko, Kenji, National Inst. of AIST
- Kanehiro, Fumio, National Inst. of AIST

### TuBTS4.3


- Bohorquez, Nestor, INRIA
- Wieber, Pierre-Brice, INRIA Rhône-Alpes

### TuBTS4.4


- Lee, Kang Kyu, KAIST HuboLab
- Sim, Okkee, KAIST
- Jeong, Hyo bin, KAIST
- Oh, Jaesung, KAIST
- Bae, Hyolin, KAIST HuboLab
- Hong, Seungwoo, Korea Advanced Institute of Science and Technology
- Oh, Jun Ho, Korea Advanced Inst. of Sci. and Tech

### TuBTS4.5

**Towards Minimal Intervention Control with Competing Constraints**, pp. 733-738.

- Huang, Yanlong, Istituto Italiano Di Tecnologia
- Silverio, João, Istituto Italiano Di Tecnologia
- Caldwell, Darwin G., Istituto Italiano Di Tecnologia

### TuBTS4.6

**Design and Evaluation of Torque Based Bipedal Walking Control System That Prevent Fall Over by Impulsive Disturbance**, pp. 739-746.

- Shirai, Takuma, Tokyo University
- Nagamatsu, Yuya, The University of Tokyo
- Suzuki, Hirotos, The University of Tokyo
- Nozawa, Shunich, The University of Tokyo
- Okada, Kei, The University of Tokyo
- Inaba, Masayuki, The University of Tokyo

### TuBTS4.7


- Bae, Hyolin, KAIST, HuboLab
- Jeong, Hyo bin, KAIST
- Oh, Jaesung, KAIST
- Lee, Kang Kyu, KAIST HuboLab
- Oh, Jun Ho, Korea Advanced Inst. of Sci. and Tech

### TuBTS4.8

**Towards to a Robotic Assisted System for Percutaneous Nephrolithotomy**, pp. 791-797.


Policy Shaping withSupervisory Attention Driven Exploration, pp. 842-847.

Printing Strain Gauges on Intuitive Surgical Da Vinci Robot End Effectors, pp. 806-812.

Learning How Pedestrians Navigate: A Deep Inverse Reinforcement Learning Approach, pp. 819-826.

Deep Semantic Lane Segmentation for Mapless Driving, pp. 869-875.
10:06-10:09 TuBTS8.3
Learning Robotic Grasping Strategy Based on Natural-Language Object Descriptions, pp. 882-887.
Bharath Rao, Achyutha
Krishnan, Krishna Kumar
He, Hongsheng
Wichita State University
Wichita State University
Wichita State University

10:06-10:10 TuBTS8.4
Erkent, Ozgur
Wolf, Christian
Laugier, Christian
Sierra González, David
Romero-Cano, Victor
INRIA
INSA-Lyon
INRIA Grenoble Rhône-Alpes
Universidad Autónoma De Occidente

10:10-10:13 TuBTS8.5
Lee, Sukhan
Naguib, Ahmed Mohammed
Islam, Naem Ul
Nguyen, Tuan Anh
Sungkyunkwan University
Intelligent Systems Research Institute (ISRI), Sungkyunkwan Univ
Intelligent Systems Research Institute (ISRI), Sungkyunkwan Univ
Sungkyunkwan University

10:10-10:15 TuBTS8.6
Hart, Justin
Shah, Rishi
Kirmani, Sean
Walker, Nick
Baldau, Kathyn
John, Nathan
Stone, Peter
University of Texas at Austin
The University of Texas at Austin
The University of Texas at Austin
The University of Texas at Austin
University of Texas at Austin
University of Texas at Austin
University of Texas at Austin

10:15-10:18 TuBTS8.7
Lee, Sukhan
Naguib, Ahmed Mohammed
Islam, Naem Ul
Nguyen, Tuan Anh
Sungkyunkwan University
Intelligent Systems Research Institute (ISRI), Sungkyunkwan Univ
Intelligent Systems Research Institute (ISRI), Sungkyunkwan Univ
Sungkyunkwan University

10:21-10:24 TuBTS8.8
Real-Time Fully Incremental Scene Understanding on Mobile Platforms, N/A.
Wald, Johanna
Tateno, Keisuke
Sturm, Jürgen
Navab, Nassir
Tombari, Federico
Technische Universität München
Technische Universität München
Metaio GmbH
TU Munich
Technische Universität München

Room 2.R1

TuBTS8

Robot Design II (Regular session)

Chair: Ma, Shugen
Co-Chair: Jardon, Alberto
Ritsumeikan University
Universidad Carlos III De Madrid

10:00-10:03 TuBTS8.1
Optimization-Based Design and Analysis of Planar Rotary Springs, pp. 927-934.
Georgiev, Nikola
Burdick, Joel
California Institute of Technology

10:03-10:06 TuBTS8.2
Quaterrion Joint: Dexterous 3-DOF Joint Representing Quaternion Motion for High-Speed Safe Interaction, pp. 935-942.
Kim, Yong-Jae
Kim, Jong-In
Jang, Wooseok
Korea University of Technology and Education
Korea University of Technology and Education
Korea University of Technology and Education

10:06-10:09 TuBTS8.3
Design of a 2 Motor 2 Degrees-Of-Freedom Coupled Tendon-Driven Joint Module, pp. 943-948.
Li, Wenyang
Chen, Peng
Bai, Dianchun
Shenyang University of Technology
JHU
SJTU

10:09-10:12 TuBTS8.4
Kakogawa, Atsushi
Ma, Shugen
Ritsumeikan University
Ritsumeikan University

10:12-10:15 TuBTS8.5
A Novel Design of Extended Coaxial Spherical Joint Module for a New Modular Type-Multiple DOFs Robotic Platform, pp. 955-960.
Lee, Jaeyong
Noh, Jaeho
Yang, Jinho
Kwangwoon University
Kwangwoon University
Hankook Mirae Technology Co., Ltd

10:15-10:18 TuBTS8.6
A Novel Cable Actuation Mechanism for 2-DOF Hyper-Redundant Bending Robot Composed of Pulleyless Rolling Joints, pp. 961-966.
Suh, Jung-wook
ETRI (Electronics and Telecommunications Research Institute)

10:18-10:21 TuBTS8.7
Design of Robotic Gripper with Constant Transmission Ratio Based on Twisted String Actuator: Concept and Evaluation, pp. 967-972.
Nedelchev, Simeon
Gaponov, Igor
Ryu, Jee-Hwan
Korea University of Technology and Education
Korea University of Technology and Education
Korea Univ. of Tech. and Education

10:21-10:24 TuBTS8.8
Stopper Angle Design for a Multi-Link Articulated Wheeled In-Pipe Robot with Underactuated Twisting Joints, pp. 973-978.
TuBTS9
Room 4.L1
Special Session: UAV Indoors Navigation (Regular session)
Chair: Campoy, Pascual Computer Vision Group. Universidad Politécnica de Madrid
Co-Chair: de Croon, Guido TU Delft / ESA
10:00-10:03 TuBTS9.1

Sampedro, Carlos Universidad Politécnica De Madrid
Rodriguez-Ramos, Alejandro Universidad Politécnica De Madrid
Gil Moreno, Ignacio Universidad Politécnica De Madrid
Mejias, Luis Queensland University of Technology
Campoy, Pascual Computer Vision Group. Universidad Politécnica de Madrid

10:03-10:06 TuBTS9.2

Perspective Correcting Visual Odometry for Agile MAVs Using a Pixel Processor Array (I), pp. 987-994.
Greatwood, Colin University of Bristol
Bose, Laurie University of Bristol
Richardson, Thomas University of Bristol
Mayol, Walterio University of Bristol
Chen, Jianing The University of Manchester
Carey, Stephen J. The University of Manchester
Dudek, Piotr The University of Manchester

10:06-10:09 TuBTS9.3

C-Blox: A Scalable and Consistent TSDF-Based Dense Mapping Approach, pp. 995-1002.
Millane, Alexander James ETH Zurich
Taylor, Zachary Jeremy ETH Zurich
Oleynikova, Helen ETH Zurich
Nieto, Juan ETH Zurich
Siegwart, Roland ETH Zurich
Cadena Lerma, Cesar ETH Zurich

10:09-10:12 TuBTS9.4

Challenges of Autonomous Flight in Indoor Environments (I), pp. 1003-1009.
de Croon, Guido TU Delft / ESA
De Wagter, Christophe Delft University of Technology

10:12-10:15 TuBTS9.5

Rodriguez-Ramos, Alejandro Universidad Politécnica De Madrid
Sampedro, Carlos Universidad Politécnica De Madrid
Bavle, Hriday PhD Student at Universidad Politécnica De Madrid
Gil Moreno, Ignacio Universidad Politécnica De Madrid
Campoy, Pascual Computer Vision Group. Universidad Politécnica de Madrid

10:15-10:18 TuBTS9.6
Stereo Visual Odometry and Semantics Based Localization of Aerial Robots in Indoor Environments (I), pp. 1018-1023.
Bavle, Hriday PhD Student at Universidad Politécnica De Madrid
Manthe, Stephan University of Koblenz-Landau
de la Puente, Paloma Universidad Politécnica De Madrid
Rodriguez-Ramos, Alejandro Universidad Politécnica De Madrid
Sampedro, Carlos Universidad Politécnica De Madrid
Campoy, Pascual Computer Vision Group. Universidad Politécnica de Madrid

10:18-10:21 TuBTS9.7
Sampedro, Carlos Universidad Politécnica De Madrid
Bavle, Hriday PhD Student at Universidad Politécnica De Madrid
Gil Moreno, Ignacio Universidad Politécnica De Madrid
de la Puente, Paloma Universidad Politécnica De Madrid
Campoy, Pascual Computer Vision Group. Universidad Politécnica de Madrid

10:21-10:24 TuBTS9.8
Drone Detection Using Depth Maps (I), pp. 1032-1037.
Carrio, Adrian Technical University of Madrid
Vemprala, Sai Texas A&M University
Ripoll, Andres TU Delft
Saripalli, Srikanta Texas A&M University
Campoy, Pascual Computer Vision Group. Universidad Politécnica de Madrid

TuCTS1
Room 1.L5
Deep Learning III (Regular session)
Chair: Demiris, Yiannis Imperial College London
Co-Chair: Sakaino, Sho Saitama University
14:30-14:33 TuCTS1.1

Bi, Thomas ETH Zurich
Fankhauser, Péter ETH Zurich
Bellicoso, C. Dario ETH Zurich
Hutter, Marco ETH Zurich

14:33-14:36 TuCTS1.2

Robust Fruit Counting Combining Deep Learning, Tracking, and Structure from Motion, pp. 1045-1052.
Liu, Xu University of Pennsylvania
Chen, Steven W University of Pennsylvania
Aditya, Shreyas University of Pennsylvania
Sivakumar, Nivedha University of Pennsylvania
Dcunha, Sandeep University of Pennsylvania
Qu, Chao University of Pennsylvania
Taylor, Camillo Jose University of Pennsylvania
Das, Jnaneshwar University of Pennsylvania
Kumar, Vijay University of Pennsylvania
Kumar, Abhiijet IIIT Hyderabad
Gunshi, Gupta IIIT Hyderabad
Sharma, Avinash International Institute of Information Technology,
Krishna, Madhava IIIT Hyderabad

Semantically Meaningful View Selection, pp. 1061-1066.
Joris, Guérin Arts Et Métiers ParisTech
Gibaru, Olivier Arts Et Métiers ParisTech
Eric, Nyiri ENSAM
Thiery, Stéphane ENSAM
Boots, Byron Georgia Institute of Technology

Distributed Deep Reinforcement Learning for Fighting Forest Fires with a Network of Aerial Robots, pp. 1067-1074.
Haksar, Ravi N. Stanford University
Schwager, Mac Stanford University

Tree Species Identification from Bark Images Using Convolutional Neural Networks, pp. 1075-1081.
Carpentier, Mathieu Laval University
Giguere, Philippe Université Laval
Gaudreault, Jonathan Laval University

Iyer, Ganesh International Institute of Information Technology,
Ramesh Kumar, Karnik Ram IIIT Hyderabad
Jatavallabhu, Krishna International Institute of Information Technology
Murthy Krishna, Madhava IIIT Hyderabad

Detecting and Picking of Folded Objects with a Multiple Sensor Integrated Robot Hand, pp. 1138-1145.
Hasegawa, Shun The University of Tokyo
Wada, Kentaro The University of Tokyo
Okada, Kei The University of Tokyo
Inaba, Masayuki The University of Tokyo

Hsiung, Shih-Chieh Carnegie Mellon University
Hsiao, Ming Carnegie Mellon University
Westman, Eric Carnegie Mellon University
Valetica, Rafaelos Carnegie Mellon University
Kaess, Michael Carnegie Mellon University

Liu, Peidong ETH Zurich
Geppert, Marcel ETH Zurich
Heng, Lionel DSO National Laboratories
Sattler, Torsten ETH Zurich
Geiger, Andreas Max Planck Institute for Intelligent Systems, Tübingen
Pollefeys, Marc ETH Zurich

Stabilize an Unsupervised Feature Learning for LiDAR-Based
### Place Recognition, pp. 1162-1167.

Yin, Peng, Shenyang Institute of Automation, Chinese Academy of Sciences
Xu, Lingyun, Chinese Academy of Sciences
Liu, Zhe, The Chinese University of Hong Kong
Li, Lu, Carnegie Mellon University
Salman, Hadi, Carnegie Mellon University
He, Yuqing, Shenyang Institute of Automation, Chinese Academy of Sciences
Xu, Weiliang, The University of Auckland
Wang, Hesheng, Shanghai Jiao Tong University
Choset, Howie, Carnegie Mellon University

**TuCTS3.4**

**DS-SLAM: A Semantic Visual SLAM towards Dynamic Environments, pp. 1168-1174.**

Yu, Chao, Tsinghua University
Liu, Zuxin, Beihang University
Liu, Xin-Jun, Tsinghua University
Xie, Fugui, Tsinghua University
Yang, Yi, Tsinghua University
Wei, Qi, Tsinghua University
Qiao, Fei, Tsinghua University

**TuCTS3.5**

**A Robust Pose Graph Approach for City Scale LiDAR Mapping, pp. 1175-1184.**

Yang, Sheng, Ditu (Beijing) Technology Co., Ltd
Zhu, Xiaoling, Ditu (Beijing) Technology Co., Ltd
Xing, Nian, Didi Chuxing
Feng, Lu, Didi
Qu, Xiaozhi, Didichuxing
Ma, Teng, Ditu (Beijing) Technology Co., Ltd

**TuCTS3.6**

**Good Feature Selection for Least Squares Pose Optimization in VO/VSLAM, pp. 1185-1189.**

Zhao, Yipu, Georgia Institute of Technology
Vela, Patricio, Georgia Institute of Technology

**TuCTS3.7**

**Dynamic Scaling Factors of Covariances for Accurate 3D Normal Distributions Transform Registration, pp. 1190-1196.**

Hong, Hyunki, Seoul National University
Lee, Beom-Hee, Seoul National University

**TuCTS3.8**

**HMAGS – Hybrid Height-Voxel Maps for Environment Representation, pp. 1197-1203.**

Garrote, Luis Carlos, Institute of Systems and Robotics
Premezida, Cristiano, University of Coimbra
Silva, David, DEEC ISR-UC
Nunes, Urbano, Instituto De Sistemas E Robotica

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**TuCTS4**

**Humanoid Robots III (Regular session)**

**Room 2.L2**

**Chair:** Metta, Giorgio, Istituto Italiano Di Tecnologia (IIT)
**Co-Chair:** Suleiman, Wael, University of Sherbrooke

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**14:30-14:33 TuCTS4.1**

**Kalman Filter Based Observer for an External Force Applied to Medium-Sized Humanoid Robots, pp. 1204-1211.**

Hawley, Louis, University of Sherbrooke
Rahem, Remy, University of Sherbrooke
Suleiman, Wael, University of Sherbrooke

**14:33-14:36 TuCTS4.2**

**CPI-Based Controllers Can Generate Both Discrete and Rhythmic Movements, pp. 1212-1217.**

Jouaiti, Melanie, Université De Lorraine, CNRS, Inria, LORIA, F-54000 Nancy, France
Henaff, Patrick, Université De Lorraine, CNRS, INRIA, LORIA, F-54000 Nancy, France

**14:36-14:39 TuCTS4.3**

**A 3D Template Model for Healthy and Impaired Walking, pp. 1218-1225.**

Ahmad Sharbafi, Maziar, Technical University of Darmstadt
Zadarevč, Matjaž, University Rehabilitation Institute of Republic of Slovenia
Matjacin, Zlatko, University Rehabilitation Institute, Republic of Slovenia
Seifarth, Andre, TU Darmstadt

**14:39-14:42 TuCTS4.4**

**Exploiting Friction in Torque Controlled Humanoid Robots, pp. 1226-1232.**

Nava, Gabriele, Istituto Italiano Di Tecnologia
Ferigo, Diego, Istituto Italiano Di Tecnologia
Pucci, Daniele, Italian Institute of Technology

**14:42-14:45 TuCTS4.5**

**Structure Preserving Multi-Contact Balance Control for Series-Elastic and Visco-Elastic Humanoid Robots, pp. 1233-1240.**

Werner, Alexander, German Aerospace Center (DLR)
Henze, Bernd, German Aerospace Center (DLR)
Kepler, Manuel, German Aerospace Center (DLR)
Löffl, Florian, German Aerospace Center (DLR)
Leyendecker, Sigrid, University of Erlangen-Nuremberg
Ott, Christian, German Aerospace Center (DLR)

**14:45-14:48 TuCTS4.6**

**Feedback Control for Cassie with Deep Reinforcement Learning, pp. 1241-1246.**

Xie, Zhaoming, University of British Columbia
Berseth, Glen, University of British Columbia
Clary, Patrick, Oregon State University
Hurst, Jonathan, Oregon State University
van de Panne, Michel, University of British Columbia

**14:48-14:51 TuCTS4.7**

**Robust and Stretched-Knee Biped Walking Using Joint-Space Motion Control, pp. 1247-1254.**

Nguyen, Kim-Ngoc-Khanh, The University of Tokyo
Noda, Shintaro, The University of Tokyo
Kojio, Yuta, The University of Tokyo
Sugai, Fumihito, The University of Tokyo
Nozawa, Shinichi, The University of Tokyo
Kakuchi, Yohei, The University of Tokyo
14:51-14:54 TuCTS4.8


Okada, Kei The University of Tokyo
Inaba, Masayuki The University of Tokyo
Viachos, Evgenios University of Southern Denmark
Tan, Zheng-Hua Aalborg University

14:51-14:54 TuCTS5

TuCTS5 Room 2.R3

Medical Robots III (Regular session)

Chair: Dario, Paolo Scuola Superiore Sant'Anna
Co-Chair: Gonçalves, Paulo Instituto Politecnico De Castelo Branco

14:30-14:36 TuCTS5.1


Zhou, Xiao-Yun Imperial College London
Riga, Celia Imperial College London
Lee, Su-Lin Imperial College London
Yang, Guang-Zhong Imperial College London

14:33-14:39 TuCTS5.2

A Confidence-Based Shared Control Strategy for the Smart Tissue Autonomous Robot (STAR), pp. 1268-1275.

Saeidi, Hamed University of Maryland College Park
Opfermann, Justin Children's National Medical Center
Kam, Michael University of Maryland
Raghunathan, Sudarshan 1994
Leonard, Simon The Johns Hopkins University
Krieger, Axel University of Maryland

14:36-14:42 TuCTS5.3

A 3D Laparoscopic Imaging System Based on Stereo-Photogrammetry with Random Patterns, pp. 1276-1282.

Sui, Congying The Chinese University of Hong Kong
Wang, Zerui The Chinese University of Hong Kong
Liu, Yunhui Chinese University of Hong Kong

14:39-14:45 TuCTS5.4


Turan, Mehmet Max Planck Institute Stuttgart
Almaloglu, Yasin Bogazici University
Onrek, Evin Pinar TU Munich
Araujo, Helder University of Coimbra
yanik, Mehmet Fatih ETH
Sitti, Metin Max-Planck Institute for Intelligent Systems

14:42-14:45 TuCTS5.5

Robust Generalized Point Cloud Registration with Expectation Maximization Considering Anisotropic Positional Uncertainties, pp. 1290-1297.

Min, Zhe The Chinese University of Hong Kong
Wang, Jiaole The Chinese University of Hong Kong
Song, Shuang Harbin Institute of Technology Shenzhen Graduate School
Meng, Max Q.-H. The Chinese University of Hong Kong

14:45-14:48 TuCTS5.6

Vision-Based Surgical Tool Pose Estimation for the Da Vinci Robotic Surgical System, pp. 1298-1305.

Hao, Ran Case Western Reserve University
Ozguner, Orhan Case Western Reserve University
Cavusoglu, M. Cenk Case Western Reserve University

14:48-14:51 TuCTS5.7


Eugster, Manuela University of Basel, BIROMED-Lab
Cattin, Philippe Department of Biomedical Engineering, University of Basel
Zam, Azhar Department of Biomedical Engineering, University of Basel
Rauter, Georg University of Basel

14:51-14:54 TuCTS5.8


Amarillo Espitia, Andres Ceit, Manuel Lardizabal 15, 20018 Donostia / San Sebastián
Oñativia, Jon EGILE Innovative Solutions, E 20850, Mendaro
Sánchez, Emilio CEIT

14:30-14:33 TuCTS6.1

A Sliding Mode Control Architecture for Human-Manipulator Cooperative Surface Treatment Tasks, pp. 1318-1325.

Gracia, Luis Technical University of Valencia
Solanes, J. Ernesto Universitat Politècnica De València
Muñoz-Benavent, Pau Universitat Politècnica De València
Valls Miro, Jaime University of Technology Sydney
Perez, Carlos Universidad Miguel Hernandez De Elche
Tormero, Josep Technical University of Valencia

14:33-14:36 TuCTS6.2

Human Intention Estimation Based on Neural Networks for Enhanced Collaboration with Robots, pp. 1326-1333.

Gracia, Luis Technical University of Valencia
Solanes, J. Ernesto Universitat Politècnica De València
Muñoz-Benavent, Pau Universitat Politècnica De València
Valls Miro, Jaime University of Technology Sydney
Perez, Carlos Universidad Miguel Hernandez De Elche
Tormero, Josep Technical University of Valencia

14:39-14:42 TuCTS6.3

Variable Admittance Control for Human-Robot Collaboration Based on Online Neural Network Training, pp. 1334-1339.

Sharkawy, Abdel-Nasser University of Patras
Kouostoumpardis, Panagiotis University of Patras
Aspragathos, Nikos A. University of Patras

14:42-14:45 TuCTS6.4


Peternel, Luka Istituto Italiano Di Tecnologia
Fang, Cheng Fondazione Istituto Italiano Di Tecnologia
Evolutionary Motion Control Optimization in Physical Human-Robot Interaction, pp. 1347-1353.

Human-Robot Cooperative Object Manipulation with Contact Changes, pp. 1354-1360.

From Human Physical Interaction to Online Motion Adaptation Using Parameterized Dynamical Systems, pp. 1361-1366.

A Series Elastic Brake Pedal to Preserve Conventional Pedal Feel under Regenerative Braking, pp. 1367-1373.


Active Range and Bearing-Based Radiation Source Localization, pp. 1389-1394.


Design and Performance Evaluation of an Infotaxis-Based Three-Dimensional Algorithm for Odor Source Localization, pp. 1413-1420.

TuCTS9

Special Session: Raw Materials, Tough Robots (Regular session)

Co-Chair: Rossi, Claudio
Universidad Politecnica De Madrid


Alvarez-Tunon, Olaya
Carlos III Madrid
Rodriguez, Angel J.
Universidad Carlos III
Jardon, Alberto
Universidad Carlos III De Madrid
Balaguier, Carlos
Universidad Carlos III De Madrid

14:33-14:36
TuCTS9.2

Mechanical Subsystems Integration and Structural Analysis for the Autonomous Underwater Explorer (I), pp. 1488-1493.

Heininen, Arttu Aleksi
Tampere University of Technology
Villa, Jose
Tampere University of Technology (TUT)
Zavari, Soheil
TTY
Salomaa, Tuomas
Tampere University of Technology, Mechanical Engineering and Int
Useni, Olli
Tampere University of Technology
Laitinen, Jouko Kalevi
Tampere University of Technology
Aaltonen, Jussi Matti
Tampere University of Technology
Koskinen, Kari Tapio
Tampere University of Technology

UX 1 System Design - a Robotic System for Underwater Mining Exploration (I), pp. 1494-1500.

Martins, Alfredo
INESC TEC
Almeida, Jose
ISEP - Instituto Superior De Engenharia Do Porto
Almeida, Carlos
Instituto Superior De Engenharia Do Porto
Dias, Andre
INESC TEC and School of Engineering, Polytechnic Institute of Porto
Dias, Nuno
Institute for Systems and Technology
Aaltonen, Jussi Matti
Tampere University of Technology
Heininen, Arttu Aleksi
Tampere University of Technology
Koskinen, Kari Tapio
Tampere University of Technology
Rossi, Claudio
Universidad Politecnica De Madrid
Dominguez, Sergio
Technical University of Madrid
Voros, Csaba
Institute of Mineralogy - Geology, University of Miskolc
Henley, Stephen
Resources Computing International Ltd
McLoughlin, Mike
Resources Computing International Ltd
van Moerkerk, Hilco
Resources Computing International Ltd
Tweedie, James
Resources Computing International Ltd
Bodo, Balazs
La Palma Research Centre
Zajzon, Norbert  
Institute of Mineralogy and 
Geology, University of Miskolc

Silva, Eduardo Alexandre  
Instituto Superior De Engenharia 
Do Porto

14:39-14:42  
TuCTS9.4

Automation in Sensing and Raw Material Characterization – a 

Desta, Feven Solomon  
Delft University of Technology

Buxton, Mike  
Delft University of Technology

14:42-14:45  
TuCTS9.5

The Benefits and Challenges of Robotics in the Mineral Raw 
Materials Sector – an Overview (I), pp. 1507-1512.

Lopes, Luis  
La Palma Research Centre

Miklovicz, Tamás  
La Palma Research Centre

Bakker, Edine  
La Palma Research Centre

Milosevic, Zorana  
Technical University of Madrid

14:45-14:48  
TuCTS9.6

Design, Modeling and Control of a Spherical Autonomous 
Underwater Vehicle for Mine Exploration (I), pp. 1513-1519.

Suarez Fernandez, Ramon  
Universidad Politecnica De 
A. Madrid

Parra Ricaurte, Edgar  
Universidad Politecnica De 
Andres Madrid

Milosevic, Zorana  
Technical University of Madrid

Dominguez, Sergio  
Technical University of Madrid

Rossi, Claudio  
Universidad Politecnica De 
Madrid

14:48-14:51  
TuCTS9.7

1520-1526.

Almeida, Jose  
ISEP - Instituto Superior De 
Engenharia Do Porto

Almeida Bernardo Ferreira, 
António João

Matias, Bruno

Lomba, Caio

Martins, Alfredo

Silva, Eduardo Alexandre  
Instituto Superior De Engenharia 
Do Porto

14:51-14:54  
TuCTS9.8

Positioning, Navigation and Awareness of the VAMOS Underwater 
Robotic Mining System (I), pp. 1527-1533.

Almeida, Jose  
ISEP - Instituto Superior De 
Engenharia Do Porto

Martins, Alfredo  
INESC TEC

Almeida, Carlos  
Instituto Superior De 
Engenharia Do Porto

Dias, André  
INESC TEC and School of 
Engineering, Polytechnic 
Institute of Po

Matias, Bruno  
INESC TEC

Almeida Bernardo Ferreira, 
António João

Jorge, Pedro

Martins, Rui

Bleier, Michael  
Zentrum Fuer Telematik E.V

Nuechter, Andreas  
University of Würzburg

Pidgeon, John  
BMT

Kasprzyniak, Stef  
SMD Soil Machine Dynamics

Silva, Eduardo Alexandre  
Instituto Superior De Engenharia 
Do Porto

14:54-14:57  
TuCTS9.9

Multi-Agent Imitation Learning for Driving Simulation, pp. 1534- 
1539.

Bhattacharyya, Raunak  
Stanford University

Phillips, Derek  
Stanford University

Wulfe, Blake  
Stanford University

Morton, Jeremy  
Stanford University

Kuefler, Alex  
Osaro, Inc

Kochenderfer, Mykel  
Stanford University

14:57-14:59  
TuCTS9.10

Model-Based Action Exploration for Learning Dynamic Motion 
Skills, pp. 1540-1546.

Berseth, Glen  
University of British Columbia

van de Panne, Michiel 
University of British Columbia

14:59-15:01  
TuCTS9.11

Active Learning Based on Data Uncertainty and Model Sensitivity, 
pp. 1547-1554.

Chen, Nutan  
Volkswagen Group

Klushyn, Alexej  
Volkswagen Group

Paraschos, Alexandros  
Volkswagen Group

Benbouzid, Djalel  
Laboratoire De l’Accélérateur 
Linéaire, Université Paris Sud 11

van der Smagt, Patrick  
TUM

15:01-15:03  
TuCTS9.12

Deep Reinforcement Learning for Audio-Visual Gaze Control, pp. 
1555-1562.

Lathuilière, Stéphane  
Inria

Massé, Benoit  
Inria

Mesejo, Pablo  
Inria

Horaud, Radu  
INRIA Grenoble Rhone-Alpes

15:03-15:05  
TuCTS9.13

An Ensemble with Shared Representations Based on 
Convolutional Networks for Continually Learning Facial 
Expressions, pp. 1563-1568.

Siqueira, Henrique  
University of Hamburg

Barros, Pablo  
University of Hamburg

Magg, Sven  
University of Hamburg

Wermeier, Stefan  
University of Hamburg

15:05-15:07  
TuCTS9.14

Deep Q-Learning for Dry Stacking Irregular Objects, pp. 1569- 
1576.

Liu, Yifang  
University at Buffalo

Shamsi, Seyed Mahdi  
SUNY at Buffalo

Fang, Le  
University at Buffalo

Chen, Changyou  
University at Buffalo

Napp, Nils  
SUNY Buffalo

15:07-15:10  
TuCTS9.15

Learning Actionable Representations from Visual Observations, 
pp. 1577-1584.

Dwibedi, Debidatta  
Google

Tompson, Jonathan  
Google

Lynch, Corey  
Google Brain

Sermanet, Pierre  
Google

15:10-15:13  
TuCTS9.16

Interactive Text2Pickup Networks for Natural Language Based 
Human-Robot Collaboration, N/A.

Ahn, Hyemin  
Seoul National University

15:13-15:16  
TuCTS9.17

Deep Learning IV (Regular session)

Chair: Quattrini Li, Alberto Dartmouth College
Co-Chair: Chen, Nutan Volkswagen Group

17:00-17:03  
TuDTS1.1

17:06-17:09  
TuDTS1.3

17:09-17:12  
TuDTS1.4

17:12-17:15  
TuDTS1.5

17:15-17:18  
TuDTS1.6

17:18-17:21  
TuDTS1.7

17:21-17:24  
TuDTS1.8
TuDTS2

Tactile and Force Sensing I (Regular session)

Chair: Asfour, Tamim Karlsruhe Institute of Technology (KIT)
Co-Chair: Bernardino, Alexandre IST - Técnico Lisboa

17:00-17:03 TuDTS2.1
Efficient Distributed Torque Computation for Large Scale Robot Skin, pp. 1593-1599.
Bergner, Florian Technical University of Munich
Dean-Leon, Emmanuel Technischen Universitaet Muenchen
Cheng, Gordon Technical University of Munich

17:03-17:06 TuDTS2.2
A Robust and Efficient Dynamic Network Protocol for a Large-Scale Artificial Robotic Skin, pp. 1600-1605.
Bader, Christian Technical University of Munich
Bergner, Florian Technical University of Munich
Cheng, Gordon Technical University of Munich

17:06-17:09 TuDTS2.3
3D Shape Perception from Monocular Vision, Touch, and Shape Priors, pp. 1606-1613.
Wang, Shaokhong MIT
Wu, Jiajun MIT
Sun, Xingyuan Shanghai Jiao Tong University
Yuan, Wenzhen MIT
Freeman, William Massachusetts Institute of Technology
Tenenbaum, Joshua Massachusetts Institute of Technology
Adelson, Edward MIT

17:09-17:12 TuDTS2.4
Exploration and Reconstruction of Unknown Objects Using a Novel Normal and Contact Sensor, pp. 1614-1620.
Ottenhaus, Simon Karlsruhe Institute of Technology (KIT)
Weiner, Pascal Karlsruhe Institute of Technology
Kaul, Lukas Karlsruhe Institute of Technology
Tulbare, Andreea Roxana Karlsruhe Institute of Technology
Asfour, Tamim Karlsruhe Institute of Technology (KIT)

17:12-17:15 TuDTS2.5
Teeple, Clark Harvard University
Becker, Kaitlyn Harvard University
Wood, Robert Harvard University

17:15-17:18 TuDTS2.6
Realtime State Estimation with Tactile and Visual Sensing for Inserting a Suction-Held Object, pp. 1628-1635.
Yu, Kuan-Ting MIT
Rodriguez, Alberto Massachusetts Institute of Technology

17:18-17:21 TuDTS2.7
Scale-Robust Localization Using General Object Landmarks, pp. 1688-1694.


Invariant Smoothing on Lie Groups, pp. 1703-1710.


A Combined RGB and Depth Descriptor for SLAM with Humanoids, pp. 1718-1724.


Running, pp. 1725-1731.
### Medical Robots IV (Regular session)

**Chair:** Stramigioli, Stefano  
**TuDTS5.1**

**Designing Concentric Tube Manipulators for Stability Using Topology Optimization,** pp. 1764-1769.
- **Al Xin Jue Luo, Kevin Looy, Thomas Sabetian, Saba Drake, James**  
  - University of Toronto  
  - Hospital for Sick Children  
  - University of Toronto  
  - Hospital for Sick Children, University of Toronto

**17:00-17:03**

**Evaluation of Torque Measurement Surrogates As Applied to Grip Torque and Jaw Angle Estimation of Robotic Surgical Tools, N.A.**
- **ONeil, John**  
  - University of Minnesota  
- **Stephens, Trevor Keith**  
  - University of Minnesota  
- **Kowalewski, Timothy**  
  - University of Minnesota

**TuDTS5.8**

**17:21-17:24**

**Yanik, Mehmet Fath**  
**Sitti, Metin**  
**Max-Planck Institute for Intelligent Systems**  

### Human-Robot Interaction III (Regular session)

**Chair:** Asada, Minoru  
**Co-Chair:** Hagita, Norihiro  
**TuDTS6.1**

**Bayesian-Inferred Flexible Path Generation in Human-Robot Collaborative Networks,** pp. 1816-1822.
- **Bentz, William**  
  - University of Michigan  
- **Panagou, Dimitra**  
  - University of Michigan, Ann Arbor

**17:00-17:03**

**TuDTS6.2**

**Head-Mounted Augmented Reality for Explainable Robotic Wheelchair Assistance,** pp. 1823-1829.
- **Zolotas, Mark**  
  - Imperial College London  
- **Elsdon, Joshua**  
  - Imperial College London  
- **Demiris, Yiannis**  
  - Imperial College London

**17:03-17:06**

**TuDTS6.3**

**Progressive Automation with DMP Synchronization and Variable Stiffness Control, N.A.**
- **Kastritsi, Theodora**  
  - Aristotle University of Thessaloniki  
- **Dimeas, Fotios**  
  - Aristotle University of Thessaloniki  
- **Doulgeri, Zoe**  
  - Aristotle University of Thessaloniki

**17:06-17:09**

**TuDTS6.4**

- **Perez Quintero, Camilo**  
  - University of Alberta  
- **Alfonso, Li Hui Qing**  
  - University of Washington  
- **Pan, Matthew**  
  - University of British Columbia  
- **Chan, Wesley Patrick**  
  - University of British Columbia  
- **Van der Loos, H.F. Machiel**  
  - University of British Columbia (UBC)  
- **Croft, Elizabeth**  
  - Monash University

**17:09-17:12**

**TuDTS6.5**

**The HRC Model Set for Human-Robot Collaboration Research,** pp. 1845-1852.
- **Zeylikman, Solya**  
  - Yale University  
- **Widder, Sarah**  
  - Yale University  
- **Roncone, Alessandro**  
  - Yale University  
- **Mangin, Olivier**  
  - Yale University  
- **Scafellati, Brian**  
  - Yale

**17:12-17:15**

**TuDTS6.6**

**Band of Brothers and Bolts: Caring about Your Robot Teammate,** pp. 1853-1858.
- **Wen, James**  
  - United States Air Force Academy  
- **Stewart, Amanda**  
  - United States Air Force Academy
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<td>17:18-17:21</td>
<td>TuDTS6.7</td>
<td>DNN-Based Speech Recognition System Dealing with Motor State As Auxiliary Information of DNN for Head Shaking Robot, pp. 1859-1863.</td>
<td>Billinghurst, Mark (Univ of Canterbury) and Tossell, Chad (USAF Academy)</td>
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<td>TuDTS6.8</td>
<td>The Power of a Hand-Shake in Human-Robot Interactions, pp. 1864-1869.</td>
<td>Lee, Moa (Hanyang University) and Chang, Joon-Hyuk (Hanyang University)</td>
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<td>TuDTS7.1</td>
<td>Received Signal Strength of Electromagnetic Waves Aided Integrated Inertial Navigation System for Underwater Vehicle, pp. 1870-1876.</td>
<td>Park, Daegil (POSTECH) and Jung, Jaehoon (Pohang University of Science and Technology)</td>
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<td>Multibeam Data Processing for Underwater Mapping, pp. 1877-1884.</td>
<td>Vaz Teixeira, Pedro (Massachusetts Institute of Technology) and Kaess, Michael (Carnegie Mellon University)</td>
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<td>Vision-Based Autonomous Underwater Swimming in Dense Coral for Combined Collision Avoidance and Target Selection, pp. 1885-1891.</td>
<td>Manderson, Travis (McGill University) and Gamboa Higuera, Juan Camilo (McGill University)</td>
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<td>TuDTS8.1</td>
<td>Robot Operations Using Knowledge-Enabled Simulation in the Loop, pp. 1892-1899.</td>
<td>Mueller, Christian Atanas (Jacobs University) and Doernbach, Tobias (Jacobs University)</td>
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<td>17:17-17:21</td>
<td>TuDTS7.5</td>
<td>Reliable Fusion of Black-Box Estimates of Underwater Localization, pp. 1900-1905.</td>
<td>Ferreira Chame, Hendry (Federal University of Rio Grande) and Machado, dos Santos, Matheus (FURG)</td>
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<td>TuDTS7.7</td>
<td>A Deformable Spiral Based Algorithm to Smooth Coverage Path Planning for Marine Growth Removal, pp. 1913-1918.</td>
<td>Hassan, Mahdi (University of Technology, Sydney) and Liu, Dikai (University of Technology, Sydney)</td>
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<td>Acoustic Tag State Estimation with Unsynchronized Hydrophones on AUVs, pp. 1919-1926.</td>
<td>Shi, Jingnan (Harvey Mudd College) and Ma, Tianyi (Harvey Mudd College)</td>
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<td>TuDTS7.3</td>
<td>Vision-Based Autonomous Underwater Swimming in Dense Coral for Combined Collision Avoidance and Target Selection, pp. 1885-1891.</td>
<td>Manderson, Travis (McGill University) and Gamboa Higuera, Juan Camilo (McGill University)</td>
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<td>TuDTS8.1</td>
<td>GeelSlim: A High-Resolution, Compact, Robust, and Calibrated Tactile-Sensing Finger, pp. 1927-1934.</td>
<td>Donlon, Elliott (MIT) and Dong, Siyuian (MIT)</td>
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<td>TuDTS8.2</td>
<td>Long Duration Surface Anchoring with a Hybrid Electrostatic and Gecko-Inspired Adhesive, N/A.</td>
<td>Ruffatto III, Donald (NASA Jet Propulsion Lab)</td>
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Grasp Assistance Supernumerary Robotic Hand

(TuDTS9)

Analytical and Experimental Analysis for Position Optimization of a Hydrostatic Actuator Concept for Wearable Robotics

(TuDTS8.4)

A Soft Optical Waveguide Coupled with Fiber Optics for Dynamic Pressure and Strain Sensing, N.A.

(TuDTS8.5)

Development of New Terminal Fixation Method for Synthetic Fiber Rope, N.A.

(TuDTS8.6)


(TuDTS8.7)

Analytical and Experimental Analysis for Position Optimization of a Grasp Assistance Supernumerary Robotic Hand, N.A.

(TuDTS8.8)


(TuDTS8.3)

Development of New Terminal Fixation Method for Synthetic Fiber Rope, N.A.

(TuDTS8.6)


(TuDTS8.7)

Analytical and Experimental Analysis for Position Optimization of a Grasp Assistance Supernumerary Robotic Hand, N.A.

(TuDTS8.8)


(TuDTS8.3)

Development of New Terminal Fixation Method for Synthetic Fiber Rope, N.A.

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(TuDTS8.7)

Analytical and Experimental Analysis for Position Optimization of a Grasp Assistance Supernumerary Robotic Hand, N.A.

(TuDTS8.8)


(TuDTS8.3)

Development of New Terminal Fixation Method for Synthetic Fiber Rope, N.A.

(TuDTS8.6)


(TuDTS8.7)

Analytical and Experimental Analysis for Position Optimization of a Grasp Assistance Supernumerary Robotic Hand, N.A.

(TuDTS8.8)

Deep Learning V (Regular session)

Co-Chair: Matellan, Vicente

18:00-18:03 TuETS1.1
Dexterous Manipulation Graphs, pp. 2040-2047.
Cruciani, Silvia  KTH Royal Institute of Technology
Smith, Claes Christian  KTH Royal Institute of Technology
Kragic, Danica  KTH
Hang, Kaiyu  Yale University

18:03-18:06 TuETS1.2
Wada, Kentaro  The University of Tokyo
Kitagawa, Shingo  University of Tokyo
Okada, Kei  The University of Tokyo
Inaba, Masayuki  The University of Tokyo

18:06-18:09 TuETS1.3
Online Prediction of Threading Task Failure Using Convolutional Neural Networks, pp. 2056-2061.
Ribeiro Moreira, Guilherme  University of Sao Paulo
Giardini Lahr, Gustavo Jose  University of Sao Paulo
Savazzi, Jose Otavio  EMBRAER
Boaventura, Thiago  University of Sao Paulo
Caurin, Glauco Augusto de Paula  Escc - Usp

18:09-18:12 TuETS1.4
Deep Reinforcement Learning for Robotic Assembly of Mixed Deformable and Rigid Objects, pp. 2062-2069.
Luo, Jianlan  UC Berkeley
Solowjow, Eugen  Hamburg University of Technology
Wen, Chengtao  Siemens
Aparicio Ojea, Juan  Siemens
Agogino, Alice  University of California Berkeley

18:12-18:15 TuETS1.5
More Than a Feeling: Learning to Grasp and Regrasp Using Vision and Touch, N.A.
Calandra, Roberto  University of California Berkeley
Owens, Andrew  MIT
Jayaraman, Dinesh  University of California, Berkeley
Lin, Justin  University of California, Berkeley
Yuan, Wenzhen  MIT
Malik, Jitendra  UC Berkeley
Adelson, Edward  MIT
Levine, Sergey  UC Berkeley

18:15-18:18 TuETS1.6
A Multimodal Classifier Generative Adversarial Network for Carry and Place Tasks from Ambiguous Language Instructions, N.A.
Magassouba, Aly  NICT
Sugiura, Komei  National Institute of Information and Communications Technology
Kawai, Hisashi  National Institute of Information and Communications Technology
### Localization and Mapping V (Regular session)

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<td>TuETS3.3</td>
<td>Mechatronic Fingernail with Static and Dynamic Force Sensing,</td>
<td>Kõiva, Risto Bielefeld University Schwank, Tobias Bielefeld University</td>
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<td>pp. 2114-2119.</td>
<td>Walck, Guillaume Bielefeld University Haschke, Robert Bielefeld University</td>
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<td>Ritter, Helge Joachim Bielefeld University</td>
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<td>18:09:18-12</td>
<td>TuETS2.4</td>
<td>Contact Force and Joint Torque Estimation Using Skin, N/A.</td>
<td>Andrade Chavez, Francisco Instituto Italiano Di Tecnologia Javier</td>
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<td>Kangro, Joan Italian Institute of Technology</td>
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<td>Traversaro, Silvio Istituto Italiano Di Tecnologia</td>
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<td>Nori, Francesco DeepMind</td>
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<td>Pucci, Daniele Italian Institute of Technology</td>
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<td>Slip Detection with a Biomimetic Tactile Sensor, N/A.</td>
<td>James, Jasper Wollaston University of Bristol</td>
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<td>Pestell, Nicholas University of Bristol</td>
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<td>Lepora, Nathan University of Bristol</td>
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<td>18:15-18:18</td>
<td>TuETS2.6</td>
<td>Active Sensing for Measuring Contact of Thin Film Gecko-Inspired</td>
<td>Huh, Tae Myung Stanford University</td>
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<td>Adhesives, N/A.</td>
<td>Liu, Cheng Stanford University</td>
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<td>Hashizume, Jiro Hitachi America Ltd</td>
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<td>Chen, Tony G. Stanford University</td>
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<td>Chang, Fu-Kuo Stanford University</td>
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<td>Cutkosky, Mark Stanford University</td>
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<td>18:18-18:21</td>
<td>TuETS2.7</td>
<td>Dynamic Locomotion Gaits of a Compliantly Actuated Quadruped</td>
<td>Lakatos, Dominic German Aerospace Center (DLR)</td>
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<td>with SLIP-Like Articulated Legs Embodied in the Mechanical Design,</td>
<td>Ploeger, Kai Technische Universität Darmstadt</td>
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<td>N/A.</td>
<td>Loeffl, Florian German Aerospace Center (DLR)</td>
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<td>Seidel, Daniel Technische Universität München</td>
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<td>Schmidt, Florian German Aerospace Center</td>
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<td>Gumpert, Thomas German Aerospace Center (DLR)</td>
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<td>John, Freia Irina TU Dortmund University</td>
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<td>Bertram, Prof. Dr. Prof. h.c. Torsten Technical University Ilmenau</td>
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<td>Albu-Schäffer, Alin DLR - German Aerospace Center</td>
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<td>Friction Variability in Planar Pushing Data: Anisotropic Friction</td>
<td>Ma, Daolin Massachusetts Institute of Technology</td>
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<td>and Data-Collection Bias, N/A.</td>
<td>Rodriguez, Alberto Massachusetts Institute of Technology</td>
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### Room 1.L2

- Chair: Sandamirskaya, Yulia University and ETH Zurich
- Co-Chair: Uhm, Taeyoung Korean Institute of Robot and Convergence

### TuETS3.1

**Pose Estimation and Map Formation with Spiking Neural Networks: Towards Neuromorphic SLAM**, pp. 2159-2166.
- Kreischer, Raphaela Institute of Neuroinformatics, University Zurich and ETH Zurich
- Pienroj, Panin D-ITET, ETH Zurich
- Renner, Alpha Institute of Neuroinformatics, University of Zurich and ETH Zurich
- Sandamirskaya, Yulia University and ETH Zurich

### TuETS3.2

**Precise Localization in High-Definition Road Maps for Urban Regions**, pp. 2167-2174.
- Poggenhans, Fabian FZI Research Center for Information Technology
- Salscheider, Niels Ole FZI Forschungszentrum Informatik
- Stiller, Christoph Karlsruhe Institute of Technology

### TuETS3.3

**Virtual Occupancy Grid Map for Submap-Based Pose Graph SLAM and Planning in 3D Environments**, pp. 2175-2182.
- Ho, Bing-Jui Carnegie Mellon University
- Sodhi, Paloma Carnegie Mellon University
- Vaz Teixeira, Pedro Massachusetts Institute of Technology
- Hsiao, Ming Carnegie Mellon University
- Kusnur, Tushar BITS Pilani, K. K. Birla Goa Campus
- Kaess, Michael Carnegie Mellon University

### TuETS3.4

- Lee, Soomok Seoul National University
- Kim, Junghoon Seoul National University
- Kim, JungWoo Seoul National University
- Oh, Gyu-Min Seoul National University
- Seo, Seung-Woo Seoul National University

### TuETS3.5

**HBST: A Hamming Distance Embedding Binary Search Tree for Feature-Based Visual Place Recognition, N/A.**
- Schlegel, Dominik Sapienza - University of Rome
- Grisetti, Giorgio Sapienza University of Rome

### TuETS3.6

- Gao, Xiang Technical University of Munich
- Wang, Rui Technical University of Munich
- Demmel, Nikolaus Technische Universität München
- Cremers, Daniel Technical University of Munich

### TuETS3.7

**Omnidirectional DSO: Direct Sparse Odometry with Fish-eye Cameras, N/A.**
- Matsuki, Hidenobu The University of Tokyo
- von Stumberg, Lukas Technische Universität München
- Usenko, Valdyslav TU Munich
- Stueckler, Joerg Max-Planck Institute for Intelligent Systems
- Cremers, Daniel Technical University of Munich
TuETS4 (Regular session)

Legged Robots II

Chair: Yoshida, Etsi
Co-Chair: Ramirez-Amaro, Karinne

18:00-18:03 TuETS4.1
Energetic Efficiency of a Compositional Controller on a Monoped with an Articulated Leg and SLIP Dynamics, pp. 2221-2228.
Yu, Jeffrey
Hong, Dennis
Haberland, Matt
UCLA
UCLA
University of California, Los Angeles

18:03-18:06 TuETS4.2
Yim, Justin K.
Fearing, Ronald
University of California, Berkeley
University of California at Berkeley

18:06-18:09 TuETS4.3
Analytically-Guided Design of a Tailed Bipedal Hopping Robot, pp. 2237-2244.
Shamsah, Abdulaziz
De, Avik
Koditschek, Daniel
University of Pennsylvania
University of Pennsylvania
University of Pennsylvania

18:09-18:12 TuETS4.4
MIT Cheetah 3: Design and Control of a Robust, Dynamic Quadrupedal Walking Motion and Footstep Placement through Quadrupedal Walking Motion and Footstep Placement through Analytically-Guided Design of a Tailed Bipedal Hopping Robot, pp. 2245-2252.
Bledt, Gerardo
Powell, Matthew
Katz, Benjamin
Di Carlo, Jared
Wensing, Patrick M.
Kim, Sangbae
Massachusetts Institute of Technology (MIT)
Massachusetts Institute of Technology
Massachusetts Institute of Technology
Massachusetts Institute of Technology
University of Notre Dame
Massachusetts Institute of Technology

18:12-18:15 TuETS4.5
Bandyopadhyay, Tirthankar
Steindl, Ryan James
Talbot, Fletcher
Kottega, Navinda
Dunganell, Ross
Wood, Brett
Barker, James
Hoehn, Karsten
Elles, Alberto
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18:15-18:18 TuETS4.6
Seidel, Daniel
Lakatos, Dominic
Albu-Schäffer, Alin
Technische Universität München
German Aerospace Center (DLR)
DLR - German Aerospace Center

18:18-18:21 TuETS4.7
Quadrupedal Walking Motion and Footstep Placement through Linear Model Predictive Control, pp. 2267-2273.
Laurenzi, Arturo
Mingo Hoffman, Enrico
Tsagarakis, Nikos
Istituto Italiano Di Tecnologia
Istituto Italiano Di Tecnologia
Istituto Italiano Di Tecnologia

TuETS5 (Regular session)

Rehabilitation Robotics

Co-Chair: Jardon, Alberto

18:00-18:03 TuETS5.1
A Synergetic Voluntary Control for Exoskeleton Based on Spinal Cord Mapping of Peripheral Bioelectric Activity, pp. 2274-2279.
Ishikawa, Shotaro
Kadone, Hideki
Suzuki, Kenji
University of Tsukuba
University of Tsukuba
University of Tsukuba

18:03-18:06 TuETS5.2
Learning-Based Walking Assistance Control Strategy for a Lower Limb Exoskeleton with Hemiplegia Patients, pp. 2280-2285.
Huang, Rui
Peng, Zhinan
Cheng, Hong
Hu, Jiangping
Qiu, Jing
Zou, Chaobin
Chen, Qiming
University of Electronic Science and Technology of China
University of Electronic Science and Technology of China
University of Electronic Science and Technology of China
University of Electronic Science and Technology of China
University of Electronic Science and Technology of China
University of Electronic Science and Technology of China
University of Electronic Science and Technology of China

18:06-18:09 TuETS5.3
Similarity of the Impact of Humanoid and In-Person Communications on Frontal Brain Activity of Older People, pp. 2286-2291.
Keshmiri, Soheil
Sumioka, Hidenobu
Yamazaki, Ryuji
Okubo, Masatake
Ishiguro, Hiroshi
Advanced Telecommunications Research Institute International (ATR)
Advanced Telecommunications Research Institute International (ATR)
Advanced Telecommunications Research Institute International (ATR)
Osaka University
Osaka University

18:09-18:12 TuETS5.4
A Phase Variable Approach to Volitional Control of Powered Knee-Ankle Prostheses, pp. 2292-2298.
Rezazadeh, Siavash
Quintero, David
Divekar, Nikhil
Gregg, Robert D.
University of Texas at Dallas
University of Texas at Dallas
University of Texas at Dallas
University of Texas at Dallas

18:12-18:15 TuETS5.5
Pre-Clinical Validation of the UHP Multifunctional Upper-Limb Rehabilitation Robot Based Platform, pp. 2299-2304.

Cable Actuated Dexterous (CADEX) Glove for Effective Rehabilitation of the Hand for Patients with Neurological Diseases, pp. 2305-2310.

Modified Adaptive Control of an Actuated Ankle Foot Orthosis to Assist Paretic Patients, pp. 2311-2317.

SMA Based Wrist Exoskeleton for Rehabilitation Therapy, pp. 2318-2323.

Utility Model Re-Description within a Motivational System for Cognitive Robotics, pp. 2324-2329.

A Neurobotic Experiment for Crossmodal Conflict Resolution in Complex Environments, pp. 2330-2335.

Passive Acoustic Tracking for Behavior Mode Classification between Surface and Underwater Vehicles, pp. 2383-2388.

Fischell, Erin Marie Woods Hole Oceanographic Institution
Viquez, Oscar Massachusetts Institute of Technology
Schmidt, Henrik Massachusetts Institute of Technology

18:09-18:12 TuETS7.4

A Rationale-Driven Team Plan Representation for Autonomous Intra-Robot Replanning, pp. 2389-2394.

Cooksey, Philip Carnegie Mellon University
Veloso, Manuela Carnegie Mellon University

18:12-18:15 TuETS7.5

Stochastic Optimization for Autonomous Vehicles with Limited Control Authority, pp. 2395-2401.

Jones, Dylan Oregon State University
Kuhlman, Michael J. University of Maryland
Sofge, Donald Naval Research Laboratory
Gupta, Satyandra K. University of Southern California
Hollinger, Geoffrey Oregon State University

18:15-18:18 TuETS7.6


Peñalver, Antonio Jaume I
Fernández, José Javier University of Jaume I
Soriano, Antonio University of Valencia
Sanz, Pedro J Jaume I

18:18-18:21 TuETS7.7

TuETS8 Room 2.R1

Chair: Oh, Sehoon DGIST (Daegu Gyeongbuk Institute of Science and Technology)
Co-Chair: Torres-Torriti, Miguel Pontificia Universidad Católica de Chile

18:00-18:03 TuETS8.1


Kim, Taewan Seoul National University
Lee, Chungkeun Seoul National University
Seo, Hoseong Seoul National University
Choi, Seungwon Seoul Nat’l University
Kim, Wonchul Seoul National University
Kim, H. Jin Seoul National University

18:03-18:06 TuETS8.2

On the Kinematics of Wheeled Motion Control of a Hybrid Wheeled-Legged CENTAURO Robot, pp. 2426-2433.

Kamedula, Malgorzata Istituto Italiano Di Tecnologia
Kashiri, Navvab Istituto Italiano Di Tecnologia
Tsagarakis, Nikos Istituto Italiano Di Tecnologia

18:06-18:09 TuETS8.3

Development of Stone Throwing Robot and High Precision Driving Control for Curling, pp. 2434-2440.

Choi, Jung Hyun DGIST
Song, ChangYong NT Robot
Kim, Kyungwan NT Robot
Oh, Sehoon DGIST (Daegu Gyeongbuk Institute of Science and Technology)

18:09-18:12 TuETS8.4

MAP - a Mobile Agile Printer Robot for On-Site Construction, pp. 2441-2448.

Sustarevas, Julius University College London
Butters, Daniel Benjamin University College London
Hammid, Mohammad University College London
Stuart-Smith, Robert University College London
Dwyer, George University College London
Pawar, Vijay Manohar University College London

18:12-18:15 TuETS8.5

Slip Modeling and Estimation for a Planetary Exploration Rover: Experimental Results from Mt. Etna, pp. 2449-2456.

Bussmann, Kristin German Aerospace Center (DLR)
Meyer, Lukas German Aerospace Center (DLR)
Steidle, Florian German Aerospace Center
Wedler, Armin DLR - German Aerospace Center

18:15-18:18 TuETS8.6

User-Specific Gaussian Process Model of Wheelchair Drivers with a Haptic Joystick Interface, pp. 2457-2463.

Huntemann, Alexander Katholieke Universiteit Leuven
Vander Poorten, Emmanuel B KU Leuven
Demeester, Eric KU Leuven

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Yang, Daniel University of California San Diego
Bewley, Thomas Flow Control & Coordinated Robotics Labs

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Sasaki, Yoko National Inst. of Advanced Industrial Science and Technology
Tanabe, Ryo Tokyo University of Science
Takeamura, Hiroshi Tokyo University of Science

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Suzuki, Reiji Nagoya University
Matsubayashi, Shilo Osaka University
Arita, Takaya Nagoya University
Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd
Okuno, Hiroshi G. Waseda University

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Inceoglu, Arda Istanbul Technical University
Ince, Gokhan Istanbul Technical University
Yaslan, Yusuf Istanbul Teknik Universitesi
Sariel, Sanem Istanbul Technical University

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Sugiyama, Osamu Kyoto University Hospital
Hoshiba, Kotaro Kanagawa University
Suzuki, Reiji Nagoya University
Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd

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Takeda, Ryu Osaka University
Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd
Komatani, Kazunori Osaka University

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Wang, Lin Queen Mary University of London
Sanchez Matilla, Ricardo Queen Mary University of London
Cavallaro, Andrea Queen Mary University of London
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Chair: Shafti, Ali
Imperial College London

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U Stuttgart
Toussaint, Marc
University of Stuttgart

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Shamwell, Earl Jared
University of Maryland, College Park; Army Research Laboratory
Leung, Sarah
GTS/Army Research Laboratory
Nothwang, William
Army Research Laboratory

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Hsu, Shih-Hsi
National Taiwan University
Chan, Shao-Hung
National Taiwan University
Wu, Ping-Tsang
National Taiwan University
Xiao, Kun
Beihang University
Fu, Li-Chen
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McGill University
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McGill University

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Saitama University
Sakaino, Sho
Saitama University
Tsui, Toshiaki
Saitama University

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Ciou, Pei Hwai
National Taiwan University
Hsiao, Yu-Ting
National Taiwan University
Wu, Zong-Ze
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National Taiwan University

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University of Minnesota
Izler, Volkart
University of Minnesota

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University of California San Diego
Wang, Zeyangyi
University of California, San Diego

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Co-Chair: Svoboda, Tomas
KAIST
Faculty of Electrical Engineering, Czech Technical University in Prague

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Italian Institute of Technology
Vazapill Sureshbabu, Anand
Istituto Italiano Di Tecnologia
Traversaro, Silvio
Istituto Italiano Di Tecnologia
Pucci, Daniele
Italian Institute of Technology
Nori, Francesco
DeepMind

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Holgado, Alexis Carlos
Waseda University
Alvarez Lopez, Javier
Waseda University, Sugano Lab
Alejandro

Schmitz, Alexander
Waseda University
Tomo, Tito Pradhono
Waseda University
Somlor, Sophon
Waseda University
Jamone, Lorenzo
Queen Mary University London
Sugano, Shigeki
Waseda University

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Morikuni, Shu
Waseda University, Graduate School of Creative Science and Engineering
Geier, Andreas
Waseda University
Schmitz, Alexander
Waseda University
Ogasa, Shun
Waseda University, Graduate School of Creative Science, Engineer
Tomo, Tito Pradhono
Waseda University
Somlor, Sophon
Waseda University
Sugano, Shigeki
Waseda University

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Meli, Leonardo
University of Siena
Tanaka, Yoshihiro
Nagoya Institute of Technology
Minamizawa, Kouta
Keio University
Prattichizzo, Domenico
Università Di Siena

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Peca, Martin
Czech Technical University in Prague
Zimmermann, Karel
Czech Technical University in Prague
Petrlik, Matej
Czech Technical University in Prague
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<td>Kamidi, Vinaykarthik Robotics and Mechatronics Lab, Williams, Adam Virginia Tech, Ben-Tzvi, Pinhas Virginia Tech</td>
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<td>Casarez, Carlos University of California, Berkeley, Fearing, Ronald University of California at Berkeley</td>
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<td>Jing, Xiaobei The University of Electro-Communications, Shenzhen Institutes Of Technology, Yong, Xu The University of Electro-Communications, Shenzhen Institutes Of Technology, Tian, Lan Shenzhen Institutes of Advanced Technology Chinese Academy of Science, Togo, Shunta Graduate School of Informatics and Engineering, the University of O, Jiang, Yinlai The University of Electro-Communications, Yokoi, Hiroshi The University of Electro-Communications, Li, Guanglin Shenzhen Institutes of Advanced Technology Chinese</td>
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- Casalino, Andrea, Politecnico Di Milano
- Messeri, Costanza, Politecnico Di Milano
- Pozzi, Maria, University of Siena
- Zanchettin, Andrea Maria, Politecnico Di Milano
- Rocco, Paolo, Politecnico Di Milano
- Prattichizzo, Domenico, University of Siena

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- Lanini, Jessica, EPFL, Biorobotics Laboratory
- Razavi, Hamed, EPFL
- Urain, Julien, IK4 - Tekniker
- Ijspeert, Auke, EPFL

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- Aroyo, Alexander Mois, Istituto Italiano Di Tecnologia
- Rea, Francesco, Istituto Italiano Di Tecnologia
- Sandini, Giulio, Italian Institute of Technology
- Sciutti, Alessandra, Istituto Italiano Di Tecnologia

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- Kang, Hao, Purdue University
- Li, Haoxiang, Adobe Research
- Zhang, Jianming, Adobe Research
- Lu, Xin, Adobe Research
- Benes, Bedrich, Purdue University

**WeATS6.5**
Haptic-Based Shared-Control Methods for a Dual-Arm System, N/A.

- Selvaggio, Mario, Università Degli Studi Di Napoli Federico II
- Abi-Farraj, Firas, CNRS-Irisa
- Pacchierotti, Claudio, Centre National De La Recherche Scientifique (CNRS)
- Robuffo Giordano, Paolo, Centre National De La Recherche Scientifique (CNRS)
- Siciliano, Bruno, Univ. Napoli Federico II

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- Shiomi, Masahiro, ATR
- Shatani, Kodia, Osaka Univ
- Minato, Takashi, ATR
- Ishiguro, Hiroshi, Osaka University

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- Peternel, Luka, Istituto Italiano Di Tecnologia
- Tsagarakis, Nikos, Istituto Italiano Di Tecnologia
- Ajoudani, Arash, Istituto Italiano Di Tecnologia

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- Vespignani, Massimo, Usra / Nasa Arc-Ti
- Friesen, Jeffrey Michael, University of California, San Diego
- SunSpiral, Vytas, SGT Inc. / NASA Ames Research Center
- Bruce, Jonathan, Usra / Nasa Arc-Ti

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- Carabia, David, Rensselaer Polytechnic Institute
- Wen, John, Rensselaer Polytechnic Institute

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- Cruz, Pedro, Instituto Superior Tecnico, Universidade De Lisboa
- Batista, Pedro, Instituto Superior Tecnico, Universidade De Lisboa

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- Vespignani, Massimo, Usra / Nasa Arc-Ti
- Ercolani, Chiara, EPFL
- Friesen, Jeffrey Michael, University of California, San Diego
- Bruce, Jonathan, Usra / Nasa Arc-Ti

**WeATS7.5**

- Brown, Travis, NASA Jet Propulsion Laboratory, California Institute of Technolo
- Stefanini, Alessandro, Politecnico Di Torino
- Georgiev, Nikola, Caltech
- Sawoniewicz, Jacek, NASA Jet Propulsion Laboratory, California Institute of Technolo
- Nesnas, Issa, Jet Propulsion Laboratory

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- P, Mithun, International Institute of Information Technology Hyderabad
- Pandya, Harit, IIIT Hyderabad
Gaud, Ayush: International Institute of Information Technology Hyderabad
Shah, Suri: Indian Institute of Technology Jodhpur
Krishna, Madhava: IIIT Hyderabad

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Kato, Hiroki: Japan Aerospace Exploration Agency
Saito, Tatsuhiko: Japan Aerospace Exploration Agency

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Co-Chair: Ortenzi, Valerio Queensland University of Technology / ACRV

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Akinola, Iretiayo: Columbia University
Varley, Jacob: Columbia University
Chen, Boyuan: Columbia University
Allen, Peter: Columbia University

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Koyama, Keisuke: University of Tokyo
Ming, Aiguo: The University of Electro Communications
Shimojo, Makoto: University of Electro Communications
Plateaux, Régis: ISMEP (SUPMECA)
Choley, Jean-Yves: SUPMECA-LISMA

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Maxime: University of Birmingham
Ortenzi, Valerio: Queensland University of Technology / ACRV
Rajasekaran, Vijaykumar: University of Birmingham
Corke, Peter: Queensland University of Technology
Stolkin, Rustam: University of Birmingham

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Lin, Hsien-Chung: University of California, Berkeley
Tang, Te: University of California, Berkeley
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Tomizuka, Masayoshi: University of California

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Kothari, Ammar: Oregon State University
Ong, Yi Herng: Oregon State University
Harlan, Nathan: Oregon State University
Balasubramanian, Ravi: Oregon State University
Grimm, Cindy: Oregon State University

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Bauza Villalonga, Maria: Massachusetts Institute of Technology
Canal Anton, Oleguer: Massachusetts Institute of Technology
Donjon, Elliott: MIT
Rodriguez, Alberto: Massachusetts Institute of Technology

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Schoellig, Angela P.: University of Toronto

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Surowik, David: Rutgers University
Bekris, Kostas E.: Rutgers, the State University of New Jersey

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Machado, Marlos C: University of Alberta
Pilarski, Patrick M.: University of Alberta

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Co-Chair: Asmar, Daniel American University of Beirut

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Co-Chair: Hagita, Norihiro ATR

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Karlsruhe Institute of Technology

Starke, Julia
Karlsruhe Institute of Technology

Hundhausen, Felix
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Massachusetts Institute of Technology (MIT)

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Massachusetts Institute of Technology

Sternad, Dagmar
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Ueda, Jun
Georgia Institute of Technology

Turkseven, Melih
Georgia Institute of Technology

Kim, Euisun
Georgia Institute of Technology

Lowery, Quincey
Georgia Tech

Bivens, Courtland
Georgia Tech Research Institute

Mayo, Michael
Georgia Tech Research Institute

Ziaeeatbar, Fatemeh
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University of Goettingen

Tamosiunaite, Minija
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Wögötter, Florentin
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Li, Yanjun
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Chen, Tianyao
Catholic University of America

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Oh-Park, Mooyeon
Burke Rehabilitation Hospital

Su, Hao
City University of New York, City College

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Karlsruhe Institute of Technology

Beil, Jonas
Karlsruhe Institute of Technology (KIT)

Asfour, Tamim
Karlsruhe Institute of Technology (KIT)

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University of Texas at Austin

Khante, Priyanka
University of Texas at Austin

Short, Elaine Schaertl
University of Texas at Austin

Thomaz, Andrea
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Simon Fraser University

Vaughan, Richard
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Pörtner, Aljoscha
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Schröder, Lilian
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Rasch, Robin
Bielefeld University of Applied Sciences

Sprute, Dennis
Bielefeld University of Applied Sciences

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Bielefeld University of Applied Sciences

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Bielefeld University of Applied Sciences

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Perez-Osorio, Jairo
Istituto Italiano Di Tecnologia

Davide, De Tommaso
Istituto Italiano Di Tecnologia

Metta, Giorgio
Istituto Italiano Di Tecnologia (IIT)

Wykowska, Agnieszka
Istituto Italiano Di Tecnologia
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Ang Jr, Marcelo H National University of Singapore
Rus, Daniela MIT

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Santos, Jorge Magazino GmbH
Hertzberg, Joachim University of Osnabrueck

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Catt, Gavin CSIRO
Pfrender, Andreas ETH Zurich
Siegwart, Roland ETH Zurich
Dubé, Renaud ETH Zürich

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Murase, Hiroshi Nagoya University

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Gray, Kurt University of North Carolina at Chapel Hill
Manocha, Dinesh University of North Carolina at Chapel Hill

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Sun, Ge Technical University of Munich
Aykut, Tamay Technical University of Munich
Alt, Nicolas Technische Universität München
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Steinbach, Eckehard Munich University of Technology

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Suarez, Raul Universitat Politecnica De Catalunya (UPC)

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11:48-11:51 WeBTS8.7
Jacquard: A Large Scale Dataset for Robotic Grasp Detection, pp. 3511-3516.
Delpiere, Amayry Ecole Centrale De Lyon/Siléane
Dellandrea, Emmanuel Ecole Centrale De Lyon
Chen, Liming Ecole Centrale De Lyon

11:51-11:54 WeBTS8.8
Planning Hand-Arm Grasping Motions with Human-Like Appearance, pp. 3517-3522.
Garcia, Nestor Universitat Politècnica De Catalunya
Suarez, Raul Universitat Politècnica De Catalunya (UPC)
Rosell, Jan Universitat Politècnica De Catalunya (UPC)
**WebTS9**  
**Planning and Mapping (Regular session)**

Chair: Hamel, William R.  
University of Tennessee

Co-Chair: Kaelbling, Leslie  
MIT

11:30-11:33  
**WeBTS9.1**  
Efficient Computation of Invariably Safe States for Motion Planning of Self-Driving Vehicles, pp. 3523-3530.

Pek, Christian  
Technical University of Munich

Althoff, Matthias  
Technische Universität München

11:33-11:36  
**WeBTS9.2**  
Improving Offline Value-Function Approximations for POMDPs by Reducing Discount Factors, pp. 3531-3536.

Chen, Yi-Chun  
University of California, Los Angeles

Kochenderfer, Mykel  
Stanford University

Spaan, Matthijs T. J.  
Delft University of Technology

**WeBTS10**  
**Room 4.R1**

**Special Session: Robotics in Challenging Environments** (Regular session)

Chair: Burroughes, Guy  
RACE, UKAEA

11:30-11:33  
**WeBTS10.1**  

Buksz, Dorian  
King’s College London

Cashmore, Michael  
King’s College London

Krarup, Benjamin  
King’s College London

Magazzini, Daniele  
King’s College London

Ridder, Bram  
King’s College London

11:33-11:36  
**WeBTS10.2**  
Grid-Based Motion Planning Using Advanced Motions for Hexapod Robots (I), pp. 3573-3578.

Cheah, Wei  
The University of Manchester

Hakim Khalili, Hassan  
University of Manchester

Watson, Simon  
University of Manchester

Lennox, Barry  
The University of Manchester

Green, Peter  
University of Manchester

11:36-11:39  
**WeBTS10.3**  
Learning from Demonstration for Hydraulic Manipulators (I), pp. 3579-3588.

Suomalainen, Markku Heikki  
Aalto University

Kolivumäki, Janne  
Tampere University of Technology

Lampinen, Santeri  
Tampere University of Technology

Kyrki, Ville  
Aalto University

Mattila, Jouni  
Tampere University of Technology

11:39-11:42  
**WeBTS10.4**  

Shi, Shanshuang  
Institute of Plasma Physics, Chinese Academy of Sciences

Cheng, Yong  
Institute of Plasma Physics, Chinese Academy of Sciences

Pan, Hongtiao  
Shenzhen University

Zhao, Wenlong  
Institute of Plasma Physics, Chinese Academy of Sciences

Wu, Huapeng  
Lappeenranta University of Technology

11:42-11:45  
**WeBTS10.5**  

Pan, Hongtiao  
Shenzhen University

Shi, Shanshuang  
Institute of Plasma Physics, Chinese Academy of Sciences

Cheng, Yong  
Institute of Plasma Physics, Chinese Academy of Sciences

Zhao, Wenlong  
Institute of Plasma Physics, Chinese Academy of Sciences

11:45-11:48  
**WeBTS10.6**  
Pose Estimation for Mobile Robots to Maximise Data Quality of Fixed-Focus Laser Diagnostics in Hazardous Environments (I), pp. 3599-3604.

West, Andrew  
The University of Manchester

Watson, Simon  
University of Manchester

Lennox, Barry  
The University of Manchester

**WeCTS1**  
**Room 1.L5**

**Deep Learning VIII** (Regular session)

Co-Chair: Detweiler, Carrick  
University of Nebraska-Lincoln

12:30-12:33  
**WeCTS1.1**  

Yu, Hyeonwoo  
Seoul National University

Lee, Beom-Hee  
Seoul National University

12:33-12:36  
**WeCTS1.2**  
End to End Vehicle Lateral Control Using Fisheye Camera, pp. 3613-3619.

Toromanoff, Marin  
Mines ParisTech/ Valeo

Wirbel, Emilie  
Valeo

Wilhelm, Frédéric  
Valeo

Vejarano, Camilo  
Valeo

Perrotton, Xavier  
Valeo

Tang, Gao
Sun, Weidong
Hauser, Kris

A Novel OCR-RCNN for Elevator Button Recognition, pp. 3626-3631.

Zhu, Delong
Li, Tingguang
Ho, Danny
Zhou, Tong
Meng, Max Q.-H.

Cost Functions for Robot Motion Style, pp. 3632-3639.

Zhou, Allan
Dragan, Anca

Game-Theoretic Cooperative Lane Changing Using Data-Driven Models, pp. 3640-3647.

Ding, Guohui
Aghil, Sina
Heckman, Christoffer
Chen, Lijun

Imitation Learning for Object Manipulation Based on Position/Force Information Using Bilateral Control, pp. 3648-3653.

Adachi, Tsuyoshi
Fujimoto, Kazuki
Sakaino, Sho
Tsui, Toshiaki

Learning Implicit Sampling Distributions for Motion Planning, pp. 3654-3661.

Zhang, Clark
Huh, Jinwook
Lee, Daniel


Qin, Tong
Shen, Shaqie

Modular Sensor Fusion for Semantic Segmentation, pp. 3670-3677.

Blum, Hermann

WeCTS2 Room 2.L5 KUKA
Sensor Fusion (Regular session)

WeCTS3 Room 1.L2
Formally Correct Composition of Coordinated Behaviors Using Control Barrier Certificates, pp. 3723-3729.

Li, Anqi
Georgia Institute of Technology
Wang, Li
Georgia Institute of Technology
Pierpaoli, Pietro
Georgia Institute of Technology
Egerstedt, Magnus
Georgia Institute of Technology


Doherty, Kevin
Massachusetts Institute of Technology
Flasphler, Genevieve
Massachusetts Institute of Technology
Roy, Nicholas
Massachusetts Institute of Technology
Girdhar, Yogesh
Woods Hole Oceanographic Institution

On the Use of Energy Tanks for Multi-Robot Interconnection, pp. 3738-3743.

Riggi, Giuseppe
University of Modena and Reggio Emilia
Fantuzzi, Cesare
Università Di Modena E Reggio Emilia
Secchi, Cristian
Univ. of Modena & Reggio Emilia


Ravichandran, Rubanraj
Bonn Rhein Sieg University of Applied Science
Huebel, Nico
KU Leuven
Blumenthal, Sebastian
Locomotec
Prassler, Erwin
Bonn-Rhein-Sieg Univ. of Applied Sciences

Self-Assembly of a Class of Infinitesimally Shape-Similar Frameworks, pp. 3751-3756.

Buckley, Ian
Georgia Institute of Technology
Egerstedt, Magnus
Georgia Institute of Technology


Banfi, Jacopo
Politecnico Di Milano
Basilio, Nicola
University of Milan
Carpin, Stefano
University of California, Merced

Visibility-Based Monitoring of a Path Using a Heterogeneous Robot Team, pp. 3765-3770.

Maini, Parikshit
Indraprastha Institute of Information Technology, Delhi
Gupta, Gautam
IIT Delhi
Tokekar, Pratap
Virginia Tech
Pb, Sujit
Indraprastha Institute of Information Technology Delhi


Chair: Jha, Devesh
Pennsylvania State University
WeCTS5 Room 2.R3
Surgical Robots I (Regular session)
Chair: Muñoz, Victor University of Malaga
Co-Chair: Shi, Chaoyang University of Toronto
12:30-12:33 WeCTS5.1
Passive Virtual Fixtures Adaptation in Minimally Invasive Robotic Surgery, N/A.
Selvaggi, Mario Università Degli Studi Di Napoli Federico II
Fontanelli, Giuseppe Andrea University of Naples Federico II
Ficuciello, Fanny Università Di Napoli Federico II
Villani, Luigi Univ. Napoli Federico II
Siciliano, Bruno Univ. Napoli Federico II
12:33-12:36 WeCTS5.2
Vessel Pose Estimation for Obstacle Avoidance in Needle Steering Surgery Using Multiple Forward Looking Sensors, pp. 3845-3852.
Virdyawan, Vani Imperial College London
Rodriguez y Baena, Ferdinando Imperial College, London, UK
12:36-12:39 WeCTS5.3
A Critical Analysis of Eight-Electromagnet Manipulation Systems: The Role of Electromagnet Configuration on Strength, Isotropy, and Access, N/A.
Pourkand, Ashkan University of Utah
Abbott, Jake University of Utah
12:39-12:42 WeCTS5.4
Frequency-Based Temperature Compensation for a Tactile Sensor Using Acoustic Reflection, N/A.
Akita, Shun Nagoya Institute of Technology
Fukuda, Tomohiro Nagoya Institute of Technology
Tanaka, Yoshihiro Nagoya Institute of Technology
Fujiwara, Michtaka Nagoya University, Graduate School of Medicine
Sano, Akihito Nagoya Institute of Technology
12:42-12:45 WeCTS5.5
A Compliant Robotic Instrument with Coupled Tendon Driven Articulated Wrist Control for Organ Retraction, N/A.
Chu, Xiangyu The Chinese University of Hong Kong
Cai, Yuanpei CUHK
Chung, Tsz Yin The Chinese University of Hong Kong
Au, Samuel The Chinese University of Hong Kong
Yip, Hoi Wut The Chinese University of Hong Kong
Moran, Stuart Retraction, Inc
12:45-12:48 WeCTS5.6
Trajectory Optimization of Robot-Assisted Endovascular Catheterization with Reinforcement Learning, pp. 3875-3881.
Chi, Wenqiang Imperial College London
Liu, Linding Imperial College London
Abdelaziz, Mohamed Essam Imperial College London
Mohamed Kassem Imperial College London
Dagnino, Giulio Imperial College London
Riga, Celia Imperial College London
Bicknell, Colin Imperial College London
Yang, Guang-Zhong Imperial College London
12:48-12:51 WeCTS5.7

WeCTS6 Room 1.L3
Human-Robot Interaction VII (Regular session)
Chair: Padir, Taskin Northeastern University
Co-Chair: Magnusson, Martin Örebro University
12:30-12:33 WeCTS6.1
Stolzenwald, Schuchar Janis University of Bristol
Immanuel Mayol, Walterio University of Bristol
12:33-12:36 WeCTS6.2
Recursive Bayesian Human Intent Recognition in Shared-Control Robotics, pp. 3905-3912.
Jain, Siddarth Northwestern University, Rehabilitation Institute of Chicago
Argall, Brenna Northwestern University
12:36-12:39 WeCTS6.3
Sinyukov, Dmitry Worcester Polytechnic Institute
Padir, Taskin Northeastern University
12:39-12:42 WeCTS6.4
Gromov, Boris IDSIA
Gambardella, Luca USI-SUPSI
Giusti, Alessandro IDSIA Lugano, SUPSI
12:42-12:45 WeCTS6.5
Establishing Appropriate Trust Via Critical States, pp. 3929-3936.
Huang, Sandy H. UC Berkeley
Bhatia, Kush University of California Berkeley
Abbeel, Pieter UC Berkeley
Dragan, Anca University of California Berkeley
12:45-12:48 WeCTS6.6

Marmol, Andres Queensland University of Technology
Corke, Peter Queensland University of Technology
Peynot, Thierry Queensland University of Technology (QUT)
12:51-12:54 WeCTS5.8
Towards Robotic Eye Surgery: Marker-Free, Online Hand-Eye Calibration Using Optical Coherence Tomography Images, N/A.
Zhou, Mingchuan Technische Universität München
Hamad, Mahdi Mr
Weiss, Jakob Technische Universität München
Eslami, Abouzar Carl Zeiss Meditec AG
Huang, Kai Sun Yat-Sen University
Maier, Mathias Klinikum Rechts Der Isar Der TU München
Lohmann, Chris P. Klinikum Rechts Der Isar Der TU München
Navab, Nassir TU Munich
Knoll, Alois Tech. Univ. Muenchen TUM
Nasseri, M. Ali Technische Universität München
**Interaction System Based on an Avatar Projected on a Pyramidal Display**, pp. 3943-3948.

- **Loza Matovelle, David César**
  Universidad De La Fuerzas Armadas ESPE
- **Marcos, Samuel**
  CARTIF Foundation
- **Zalama, Eduardo**
  Instituto De Las Tecnologías delaProducción(ITAP),University of Va
- **Gomez Garcia Bermejo, Jaime**
  University of Valladolid

**WeCTS7**
**Autonomous Vehicles II (Regular session)**

- **Chair**: Topp, Elin Anna  
  Lud University - LTH
- **Co-Chair**: Stachniss, Cyrill  
  University of Bonn

12:30-12:33  **WeCTS7.1**

- **Judd, Kevin Michael**
  University of Oxford
- **Gammell, Jonathan**
  University of Oxford
- **Newman, Paul**
  Oxford University

12:33-12:36  **WeCTS7.2**
**Underwater Surveying Via Bearing Only Cooperative Localization**, pp. 3957-3963.

- **Damron, Hunter**
  University of South Carolina
- **Quattrini Li, Alberto**
  Dartmouth College
- **Rekleitis, Ioannis**
  University of South Carolina

12:36-12:39  **WeCTS7.3**
**Ego-Motion Estimate Corruption Due to Violations of the Range Flow Constraint**, pp. 3964-3969.

- **Monaco, Chris**
  Pennsylvania State University
- **Brennan, Sean**
  Penn State University

12:39-12:42  **WeCTS7.4**

- **Jacobson, Adam**
  Queensland University of Technology
- **Zeng, Fan**
  Queensland University of Technology
- **Smith, David**
  Caterpillar
- **Boswell, Nigel**
  Caterpillar
- **Peynot, Thierry**
  Queensland University of Technology (QUT)
- **Milford, Michael J**
  Queensland University of Technology

12:42-12:45  **WeCTS7.5**

- **Zhao, Wen**
  Waseda University
- **Kamezaki, Mitsuhiro**
  Waseda University
- **Yoshida, Kento**
  Waseda University
- **Konno, Minoru**
  Tokyo Gas Co. Ltd
12:42-12:45  WeCTS8.5
High-Speed High-Precision Proximity Sensor for Detection of Tilt, Distance and Contact, N/A.
Koyama, Keisuke University of Tokyo
Shimojo, Makoto University of Electro-Communications
Senoo, Taku University of Tokyo
Ishikawa, Masatoshi University of Tokyo

12:45-12:48  WeCTS8.6
Real-Time Grasp Planning for Multi-Fingered Hands by Finger Splitting, pp. 4045-4052.
Fan, Yongxiang University of California, Berkeley
Tang, Te University of California, Berkeley
Lin, Hsien-Chung University of California, Berkeley
Tomizuka, Masayoshi University of California

12:48-12:51  WeCTS8.7
Grasp Stiffness Control in Robotic Hands through Coordinated Optimization of Pose and Joint Stiffness, N/A.
Ruiz Garate, Virginia Istituto Italiano Di Tecnologia
Pozzi, Maria University of Siena
Prattichizzo, Domenico University of Siena
Tsagarakis, Nikos Istituto Italiano Di Tecnologia
Ajoyani, Arash Istituto Italiano Di Tecnologia

12:51-12:54  WeCTS8.8
Interleaving Hierarchical Task Planning and Motion Constraint Testing for Dual-Arm Manipulation, pp. 4061-4066.
Suárez-Hernández, Alejandro UPC-CSIC
Alejandro Alenyá, Guillen CSIC-UPC
Torras, Carme Csic - Upc

12:30-12:33  WeCTS9.1
Nagano, Masatoshi University of Electro-Communications
Nakamura, Tomoaki The University of Electro-Communications
Nagai, Takayuki University of Electro-Communications
Mochihashi, Daichi Institute of Statistical Mathematics
Kobayashi, Ichiro Ochanomizu University
Kaneko, Masahide Graduate School of Electro-Communications, the UniversityofElect

12:33-12:36  WeCTS9.2
Persistent Anytime Learning of Objects from Unseen Classes, pp. 4075-4082.
Denninger, Maximilian German Aerospace Center (DLR)

12:36-12:39  WeCTS9.3
Adaptive Robot Body Learning and Estimation through Predictive Coding, pp. 4083-4090.
Lanillos, Pablo Technische Universität München
Cheng, Gordon Technical University of Munich

12:39-12:42  WeCTS9.4
Online Learning of Body Orientation Control on a Humanoid Robot Using Finite Element Goal Babbling, pp. 4091-4098.
Lovikken, Pontus Softbank Robotics Europe
Hemion, Nikolas SoftBank Robotics Europe
Lalfaquière, Alban Al Lab, SoftBank Robotics EU
Spranger, Michael Sony Computer Science Laboratories Inc
Cangelosi, Angelo University of Plymouth

12:42-12:45  WeCTS9.5
Cost Adaptation for Robust Decentralized Swarm Behaviour, pp. 4099-4106.
Henderson, Peter McGill University
Vertescher, Matthew McGill University
Meger, David Paul McGill University
Coates, Mark McGill University

12:45-12:48  WeCTS9.6
Active Model Learning and Diverse Action Sampling for Task and Motion Planning, pp. 4107-4114.
Wang, Zi Massachusetts Institute of Technology
Garrett, Caelan Massachusetts Institute of Technology
Kaelbling, Leslie MIT
Lozano-Perez, Tomas MIT

12:48-12:51  WeCTS9.7
Improving Reinforcement Learning Pre-Training with Variational Dropout, pp. 4115-4122.
Blau, Tom University of Sydney
Ott, Lionel University of Sydney
Ramos, Fabio University of Sydney

12:51-12:54  WeCTS9.8
Deep Episodic Memory: Encoding, Recalling, and Predicting Episodic Experiences for Robot Action Execution, N/A..
Rothfuss, Jonas Karlsruhe Institute of Technology
Ferreira, Fabio Karlsruhe Institute of Technology
Aksoy, Eren Erdal Halmstad University
Zhou, You Karlsruhe Institute of Technology (KIT)
Asfour, Tamim Karlsruhe Institute of Technology (KIT)
Amherst

Grupen, Rod
University of Massachusetts
12:33-12:36 WeCTS10.2
An Extrinsic Dexterity Approach to the IROS 2018 Fan Robotic Challenge, pp. 4139-4144.
Kwiatkowski, Jennifer
École De Technologie Supérieure
Roberge, Jean-Philippe
École De Technologie Supérieure
Nadeau, Nicholas A.
École De Technologie Supérieure
L’Écuyer-Lapierre, Louis
École De Technologie Supérieure
Duchaine, Vincent
École De Technologie Supérieure

12:36-12:39 WeCTS10.3
Development of a Low-Inertia High-Stiffness Manipulator LIMS2 for High-Speed Manipulation of Foldable Objects, pp. 4145-4151.
Song, Hansol
Koreatech
Kim, Yun-Soo
Koreatech
Yoon, Jun-suk
Korea University of Technology and Education (Koreatech)
Yun, Seong-Ho
Koreatech, IRIM Lab
Seo, Jiwon
Koreatech
Kim, Yong-Jae
Korea University of Technology and Education

12:39-12:42 WeCTS10.4
Flamen – 7 DOF Robotic Arm to Manipulate a Spanish Fan, pp. 4152-4157.
Nair, Manu Harikrishnan
SRM Institute of Science and Technology
Singh, Tarush Ghanshyam
SRM Institute of Science and Technology
Chourasia, Gunjan
SRM Institute of Science and Technology
Das, Amrit
SRM Institute of Science and Technology
Shrivastava, Akash
SRM Institute of Science and Technology
Bhatt, Zeel Shaileshkumar
SRM Institute of Science and Technology

12:42-12:45 WeCTS10.5
IROS 2018 Fan Challenge - Team DLR Augsburg, pp. 4158-4163.
Schönhheits, Manfred
German Aerospace Center (DLR)
Larsen, Lars
German Aerospace Center
Schuster, Alfons
German Aerospace Center
Gänswürger, Philipp
German Aerospace Center (DLR)

14:33-14:36 WeDTS1.2
A Universal Controller for Unmanned Aerial Vehicles, pp. 4171-4176.

WeDTS1

Aerial Systems I (Regular session)
Room 1.L5
Chair: Ollero, Anibal
University of Seville
Co-Chair: Wolfe, Kevin
Johns Hopkins University Applied Physics Laboratory
14:30-14:33 WeDTS1.1
Improved Quadcopter Disturbance Rejection Using Added Angular Momentum, pp. 4164-4170.
Bucki, Nathan
University of California, Berkeley
Mueller, Mark Wilfried
University of California, Berkeley

14:34-14:37 WeDTS1.2
A Universal Controller for Unmanned Aerial Vehicles, pp. 4171-4176.

WeDTS2

Sensorial Perception I (Regular session)
Room 2.L5 KUKA
Chair: Suh, Il Hong
Hanyang University
Co-Chair: Haschke, Robert
Bielefeld University
14:30-14:33 WeDTS2.1
Real-Time Light Field Processing for Autonomous Robotics, pp. 4218-4225.
Bajpayee, Abhishek
MIT

Shimizu, Sota Shibaura Institute of Technology
Murakami, Rei Shibaura Institute of Technology
Tominaga, Motonori SOKEN

Learning Synergies between Pushing and Grasping with Self-Supervised Deep Reinforcement Learning, pp. 4238-4242.

Zeng, Andy Princeton University
Song, Shuran Princeton University
Welker, Stefan Albert-Ludwigs-Universitaet Freiburg
Lee, Johnny Google Rodriguez, Alberto Massachusetts Institute of Technology
Funkhouser, Thomas A. Princeton University


Cho, Younggun Korea Advanced Institute of Science and Technology
Jeong, Jinyong KAIST
Kim, Ayoung Korea Advanced Institute of Science Technology

Fast Ellipse Detection Via Gradient Information for Robotic Manipulation of Cylindrical Objects, N/A.

Dong, Huixu Nanyang Technological University
Sun, Guangbin Nanyang Technological University
Pang, Wee-Ching Nanyang Technological University
Asadi, Ehsan Nanyang Technological University
Prasad, Dilip Nanyang Technological University
Chen, I-Ming Nanyang Technological University

Towards Material Classification of Scenes Using Active Thermography, pp. 4262-4269.

Bai, Haoping Georgia Institute of Technology
Bhattacharjee, Tapomayukh University of Washington
Chen, Haofeng Georgia Institute of Technology
Kapusta, Ariel Georgia Institute of Technology
Kemp, Charlie Georgia Institute of Technology

Vision-Based State Estimation and Trajectory Tracking Control of Car-Like Mobile Robots with Wheel Skidding and Slipping, pp. 4270-4275.

Towards Material Classification of Scenes Using Active Thermography, pp. 4262-4269.

Bai, Haoping Georgia Institute of Technology
Bhattacharjee, Tapomayukh University of Washington
Chen, Haofeng Georgia Institute of Technology
Kapusta, Ariel Georgia Institute of Technology
Kemp, Charlie Georgia Institute of Technology
14:45-14:48  WeDTS3.6
Resilient Active Information Gathering with Mobile Robots, pp. 4309-4316.
Schlotfeldt, Brent  University of Pennsylvania
Tzoumas, Vasilieos  Massachusetts Institute of Technology
Thakur, Dinesh  University of Pennsylvania
Pappas, George J.  University of Pennsylvania

14:48:14:51  WeDTS4.1
Reach-Avoid Problems Via Sum-Of-Squares Optimization and Dynamic Programming, pp. 4325-4332.
Landry, Benoit  Stanford University
Chen, Mo  Stanford
Hemley, Scott  Stanford University
Pavone, Marco  Stanford University

WeDTS4  Room 2.L2
Legged Robots VI (Regular session)
Chair: Martinez De La Casa Díaz, Santiago  Univ. Carlos III De Madrid

14:30-14:33  WeDTS4.2
Development of Rimless Wheel with Controlled Wobbling Mass, pp. 4333-4339.
Hanazawa, Yuta  Kyushu Institute of Technology

14:33-14:36  WeDTS4.3
Maneuverability in Dynamic Vertical Climbing, pp. 4340-4347.
Brown, Jason  Florida State University
Austin, Max  Florida State University
Kanwar, Bharat  Georgia Institute of Technology
Jonas, Tyler  Florida State University
Clark, Jonathan  Florida State University

14:36-14:39  WeDTS4.4
Design of Extra Robotic Legs for Augmenting Human Payload Capabilities by Exploiting Singularity and Torque Redistribution, pp. 4348-4354.
Gonzalez, Daniel  Massachusetts Institute of Technology
Asada, Harry  MIT

14:39-14:42  WeDTS4.5
Bao, Ruizhi  Brunel University
Geng, Tao  Middlesex University

14:45-14:48  WeDTS4.6
Torque Controlled Biped Model through a Bio-Inspired Controller

Using Adaptive Learning, pp. 4369-4374.
Ferreira, César  University of Minho
Gomes Da Cunha, Tomás  Universidade Do Minho
André Reis, Luis Paulo  University of Minho
Santos, Cristina  University of Minho

14:48-14:51  WeDTS4.7
High-Speed Stealth Walking of Underactuated Biped Utilizing Effects of Upper-Body Control and Semicircular Feet, pp. 4375-4380.
Asano, Fumihiko  Japan Advanced Institute of Science and Technology

14:51-14:54  WeDTS4.8
Estimating Contact Forces and Moments for Walking Robots and Exoskeletons Using Complementary Energy Methods, N.A.
Vantilt, Jonas  KU Leuven
Giraddi, Chetan  KU Leuven
Aertbelien, Erwin  KU Leuven
De Groote, Friedl  KU Leuven
De Schutter, Joris  KU Leuven

WeDTS5  Room 2.R3
Surgical Robots II (Regular session)
Co-Chair: Tumerdem, Ugur  Marmara University

14:30-14:33  WeDTS5.1
Fontanelli, Giuseppe Andrea  University of Naples Federico II
Yang, Guang-Zhong  Imperial College London
Siciliano, Bruno  Univ. Napoli Federico II

14:33-14:36  WeDTS5.2
External Force/Torque Estimation on a Dexterous Parallel Robotic Surgical Instrument Wrist, pp. 4396-4403.
Yilmaz, Nural  Marmara University
Bazman, Merve  Marmara University
Tumerdem, Ugur  Marmara University

14:36-14:39  WeDTS5.3
Hand-Impedance Measurement During Laparoscopic Training Coupled with Robotic Manipulators, pp. 4404-4410.
Harun, Tugal  Manchester University
Gautier, Benjamin  Heriot-Watt University
Kircicek, Merve  Heriot-Watt University
Erden, Mustafa Suphi  Heriot-Watt University

14:39-14:42  WeDTS5.4
Su, Yun-Hsuan  University of Washington
Huang, Issac  University of Washington
Huang, Kevin  Trinity College
Hannaford, Blake  University of Washington

14:42-14:45  WeDTS5.5
Sip Sensing for Intelligent, Improved Grasping and Retraction in Robot-Assisted Surgery, N.A.
Burkhard, Natalie  Stanford University
Cutkosky, Mark  Stanford University
Steger, Ryan  Intuitive Surgical

14:45-14:48  WeDTS5.6
Model-Based Needle Steering in Soft Tissue Via Lateral Needle Actuation, N.A.
WeDTS6

Human-Robot Interaction VIII (Regular session)

Chair: Fukuda, Toshio
Co-Chair: Ku, Li Yang

14:30-14:33 WeDTS6.1
Preference-Based Assistance Prediction for Human-Robot Collaboration Tasks, pp. 4441-4448.
Grigore, Elena Corina
Yale University
Roncone, Alessandro
Yale University
Mangin, Olivier
Yale University
Scassellati, Brian
Yale

14:33-14:36 WeDTS6.2
Collaborative Planning for Mixed-Autonomy Lane Merging, pp. 4449-4455.
Bansal, Shray
Georgia Institute of Technology
Cosgun, Akansel
Monash University
Nakhaei, Alireza
Honda Research Institute USA
Fujimura, Kikuo
Honda Research Institute

14:36-14:39 WeDTS6.3
Taranovič, Aleksandar
Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Jevtić, Aleksandar
Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Torras, Carme
Caic - UPC

14:39-14:42 WeDTS6.4
Continuous Shared Control for Robotic Arm Reaching Driven by a Hybrid Gaze-Brain Machine Interface, pp. 4462-4467.
Wang, Yanxin
Southeast University
Xu, Guozheng
Nanjing University of Posts and Telecommunications
Song, Aiguo
Southeast University
Xu, Baoguo
School of Instrument Science and Engineering, Southeast University
Li, Huijun
Southeast University
Hu, Cong
Guilin University of Electronic Technology
Zeng, Hong
Southeast University

14:42-14:45 WeDTS6.5
Bera, Aniket
University of North Carolina at Chapel Hill
Randhavane, Tanmay
UNC
Kubin, Emily
University of North Carolina at Chapel Hill

WeDTS7

Autonomous Vehicles III (Regular session)

Chair: Spenko, Matthew
Co-Chair: Bergasa, Luis Miguel

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KNOWROB_SIM — Game Engine-Enabled Knowledge Processing towards Cognition-Enabled Robot Control, pp. 4491-4498.
Haidu, Andrei
University of Bremen
Beißler, Daniel
Universität Bremen
Bozuoglu, Asli Kaan
University of Bremen
Beetz, Michael
University of Bremen

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Probabilistic Collision Threat Assessment for Autonomous Driving at Road Intersections Inclusive of Vehicles in Violation of Traffic Rules, pp. 4499-4506.
Noh, Samyeul
Electronics and Telecommunications Research Institute (ETRI)

14:36-14:39 WeDTS7.3
Failing to Learn: Autonomously Identifying Perception Failures for Self-Driving Cars, N/A.
Srinivasan Ramanagopal, Manikandasiram
University of Michigan
Anderson, Cyrus
University of Michigan
Vasudevan, Ram
University of Michigan
Johnston-Robeson, Matthew
University of Michigan

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LiDAR-Based Object Tracking and Shape Estimation Using Polylines and Free-Space Information, pp. 4515-4522.
Kraemer, Stefan
Karlsruhe Institute of Technology
Bouzouara, Mohamed
AUDI AG
Stiller, Christoph
Karlsruhe Institute of Technology

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Ajanović, Zlatan
Virtual Vehicle Research Center
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Five-Fingered Hand with Wide Range of Thumb Using
Model-Free Grasp Planning for Configurable Vacuum Grippers.

Vehicle Rebalancing for Mobility-On-Demand Systems with Ride-Sharing, pp. 4539-4546.
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Five-Fingered Hand with Wide Range of Thumb Using Combination of Machined Springs and Variable Stiffness Joints, pp. 4562-4567.

Bastide, Simon
CIAMS Laboratory, Univ. Paris-Sud, Université Paris-Saclay, F-91400 Orsay, France

Vignais, Nicolas
Univ. Paris-Sud

Geffard, Franck
Atomic Energy Commissariat (CEA)

Berret, Bastien
Université Paris-Sud 11

Wearable Pediatric Gait Exoskeleton a Feasibility Study (I), pp. 4667-4672.

Ganguly, Amartya
Marsi Bionics SL

Sanz-Merodio, Daniel
Marsi Bionics

Puyuelo, Gonzalo
King Juan Carlos University

Garcés, Elena
Marsi Bionics

Wearable Pediatric Gait Exoskeleton a Feasibility Study (I), pp. 4673-4678.

Gasperri, Gian Maria
University of Pisa

Bair, Michael Owen
Northern Arizona University

Libby, Robert
Northern Arizona University

Lerner, Zachary
Northern Arizona University

Aerial Systems II (Regular session)

Chair: Campoy, Pascual
Computer Vision Group.

University Politécnica De Madrid

Co-Chair: Kostavelis, Ioannis
Center for Research and Technology Hellas

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Co-Chair: Nakamura, Yutaka
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Huang, Shoudong  
Fitch, Robert
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Rovinsky, Dany  
Agmon, Noa
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Piranda, Benoit  
Goldstein, Seth
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Bretagne, Estelle
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Staub, Nicolas  
Lee, Dongjun
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Lewis, Michael  
Sycara, Katia  
Scherer, Sebastian
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Maitra, Madhubanti  
Bhattacharya, Samar
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Chair: Maeda, Shingo  
Co-Chair: Abu-Dakka, Fares
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Singh, Avinash  
James, Johannes  
Fuller, Sawyer
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Madhavrao  
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Bouhadda, Ismail  
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Bourbon, Gilles
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Zhang, Lin  
Yang, Guang-Zhong
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Keldenich, Phillip  
Manzoor, Sheryl  
Huang, Li  
Krupke, Dominik Michael
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Becker, Aaron
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Lin, Yuqing
Beijing Institute of Technology
Liu, Xiaoming
Beijing Institute of Technology
Arai, Tatsuo
University of Electro-Communications

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Chair: Okamura, Allison M.
Stanford University
Co-Chair: Ishii, Hiroyuki
Waseda University

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University College London
Bergeles, Christos
University College London
Da Cruz, Lyndon
Moorfields Eye Hospital

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Tuna, Eser Erdem
Case Western Reserve University
Liu, Taoming
Case Western Reserve University
Jackson, Russell
Case Western Reserve University
Poirot, Nae Lombard
Case Western Reserve University
Russell, Mac
Case Western Reserve University
Cavusoglu, M. Cenk
Case Western Reserve University

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Sick Kids Children's Hospital
Looi, Thomas
Hospital for Sick Children
Saab, Rami
University of Toronto
Shorter, Amanda
Northwestern University, the Rehabilitation Institute of Chicago
Goldenberg, Andrew
University of Toronto
Drake, James
Hospital for Sick Children, University of Toronto

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Fu, Mengyu
University of North Carolina at Chapel Hill
Kuntz, Alan
University of North Carolina at Chapel Hill
Webster III, Robert James
Vanderbilt University
Alterovitz, Ron
University of North Carolina at Chapel Hill

17:12-17:15 WeETS5.5
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Song, Jingwei
University of Technology, Sydney
Wang, Jun
University of Technology, Sydney

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Trigonometric Ratio-Based Remote Center of Motion Mechanism for Bone Drilling, pp. 4958-4963.
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DGIST
Lee, Seongpung
DGIST
Ji, Dae Keun
DGIST
Choi, Hyunseok
DGIST
Hong, Jaesung
DGIST

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Berthet-Rayne, Pierre
Imperial College London
Leibrandt, Konrad
Imperial College London
Kim, Ki-Young
Korea Institute of Machinery and Materials
Seneci, Carlo Alberto
University College London
Shang, Jianzhong
Imperial College London
Yang, Guang-Zhong
Imperial College London

WeETS6 Room 1.L3
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Chair: Biagiotti, Luigi
University of Modena and Reggio Emilia
Co-Chair: Abderrahim, Mohamed
Carlos III University

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Singh, Harsimran
DLR German Aerospace Center
Jafari, Aghil
University of the West of England
Ryu, Jee-Hwan
Korea Univ. of Tech. and Education
Peer, Angelika
University of the West of England, Bristol

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Preliminary Insights from the METERON SUPVIS Justin Space-Robotics Experiment, N/A.
Schmaus, Peter
German Aerospace Center (DLR)
Leidner, Daniel
German Aerospace Center (DLR)
Krueger, Thomas
European Space Agency
Schiele, Andre
European Space Agency
Pleintinger, Benedikt
Institute of Robotics and Mechatronics, GermanAerospaceCenter (DLR)
Bayer, Ralph
German Aerospace Center (DLR), Institute of Robotics and Mechat
Lii, Neal Y.
German Aerospace Center (DLR)

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Moreno Franco, Olmo Alonso
Istituto Italiano Di Tecnologia
Bimbo, Joao
Istituto Italiano Di Tecnologia
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El-Hussieny, Haitham, Faculty of Engineering (Shoubra), Benha University
Mehmood, Usman, Korea University of Technology and Education
Jeong, Zain, Korea University of Technology and Education
Hawkes, Elliot, Wright University of California, Santa Barbara
Okamura, Allison M., Stanford University
Ryu, Jee-Hwan, Korea University of Technology and Education

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Krupke, Dennis, University of Hamburg
Steinicke, Frank, HCI / University of Hamburg
Lubos, Paul, HCI / University of Hamburg
Jonetzko, Yannick, TAMS / University of Hamburg
Görner, Michael, University of Hamburg
Zhang, Jianwei, University of Hamburg

17:15-17:18 WeETS6.6
Abi-Fiarraj, Firas, CNRS-Irisa
Henze, Bernd, German Aerospace Center (DLR)
Werner, Alexander, German Aerospace Center (DLR)
Panzirsch, Michael, DLR Institute of Robotics and Mechatronics (DLR)
Ott, Christian, German Aerospace Center (DLR)
Roa, Maximo A., DLR - German Aerospace Center

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Whitney, David, Brown University
Rosen, Eric, Brown University
Ullman, Daniel, Brown University
Phillips, Elizabeth, Brown University
Tellex, Stefanie, Brown University

17:21-17:24 WeETS6.8
Abi-Fiarraj, Firas, CNRS-Irisa
Pacchierotti, Claudio, Centre National De La Recherche Scientifique (CNRS)
Robuffo Giordano, Paolo, Centre National De La Recherche Scientifique (CNRS)

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Hernandez Melero, Mar, Universidad Carlos III De Madrid
Oña Simbaña, Edwin Daniel, University Carlos III of Madrid
Garcia-Haro, Juan Miguel, Carlos III University of Madrid
Jardon, Alberto, Universidad Carlos III De Madrid
Balaguer, Carlos, Universidad Carlos III De Madrid

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Han, Jeakweon, Hanyang University
DongKuk, Yoon, Hanyang University
Kim, BaekSeok, Hanyang University
Kim, Yitaek, Hanyang University
Park, Cheonyu, Hanyang University
Song, Hyunjong, Hanyang University
Eum, Yoonseal, Sookmyung Women's University
Moon, Jeongin, Seoul National University

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Garcia-Haro, Juan Miguel, Carlos III University of Madrid
Oña Simbaña, Edwin Daniel, University Carlos III of Madrid
Martinez, Santiago, Universidad Carlos III De Madrid
Hernandez Vicen, Juan, University Carlos III
Balaguer, Carlos, Universidad Carlos III De Madrid

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Fehr, Marius, ETH Zürich
Schneider, Thomas, ETH Zürich
Siegwart, Roland, ETH Zurich

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Britton Arranz, Lara, CNRS
Muschinoiski, Matthieu, Gipsa-Lab
Dumon, Jonathan, Gipsa-LAB
Marchand, Nicolas, GIPSA-Lab CNRS/U of Grenoble/INRIA

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Park, Daegil, POSTECH
Lee, Yeongjun, Korea Research Institute of Ships and Ocean Engineering
Jung, Kwangyik, Korea Advanced Institute of Science and Technology
Kang, Hyungjoo, Korea Institute of Robot and Convergence
Kl, Hyeonseung, Korea Institute of Robot and Convergence
Lee, Jung-Woo, Korea Institute of Robot and Convergence
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Eppe, Manfred
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Wermter, Stefan

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WeETS8
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Chair: Saská, Martin
Co-Chair: Porta, Josep M

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Porta, Josep M
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Gangloff, Jacques
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WeETS9
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Kinematics and Dynamics I (Regular session)

Chair: Lynch, Kevin
Co-Chair: Gouttefarde, Marc

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Jeon, Hong Jun
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Hussein, Hussein
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Steil, Jochen J.

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WeETS9.6
A Fail-Safe Semi-Centralized Impedance Controller: Validation on a Parallel Kinematics Ankle, pp. 5141-5147.
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<td>Probabilistic Kinematic State Estimation for Motion Planning of Planetary Rovers</td>
<td>Ruscelli, Francesco Istituto Italiano Di Tecnologia, Laurenzi, Arturo Istituto Italiano Di Tecnologia, Mingo Hoffman, Enrico Fondazione Istituto Italiano Di Tecnologia, Tsagarakis, Nikos Istituto Italiano Di Tecnologia</td>
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<td>WeETS9.8</td>
<td>Constrained Control of Robotic Manipulators Using the Explicit Reference Governor</td>
<td>Merckaert, Kelly Vrije Universiteit Brussel (VUB), Nicotra, Marco M University of Michigan, Vanderborght, Bram Vrije Universiteit Brussel, Garone, Emanuele Université Libre De Bruxelles</td>
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<td>Special Session: Functional Electrical Stimulation and Wearable Robots - towards a Hybrid Solution for Movement Restoration</td>
<td>Gil, Javier Spanish National Research Council (CSIC), Sánchez-Villamañán, M. Carmen, Jesús, Gómez, Ortiz, Andrea Spanish National Research Council (CSIC), del-Am, Antonio J. National Hospital for Paraplegics, Pons, Jose Luis Spanish Research Council, Moreno, Juan C. Cajal Institute, CSIC</td>
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<td>WeFTS1</td>
<td>Room 1.L5 Aerial Systems III (Regular session)</td>
<td>Chair: Matthies, Larry Jet Propulsion Laboratory, Daftry, Shreyansh NASA Jet Propulsion Laboratory, Agrawal, Yashasvi Carnegie Mellon University, Matthies, Larry Jet Propulsion Laboratory</td>
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<td>WeFTS1.1</td>
<td>Online Self-Supervised Long-Range Scene Segmentation for MAVs</td>
<td>Falanga, Davide University of Zurich, Foehn, Philipp University of Zurich, Lu, Peng The Hong Kong Polytechnic University, Scaramuzza, Davide University of Zurich</td>
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<td>PAMPC: Perception-Aware Model Predictive Control for Quadrotors</td>
<td>Witting, Christian Aamand Technical University of Denmark, Fehr, Marius ETH Zürich, Bähnemann, Rik ETH Zürich, Oleynikova, Helen ETH Zürich, Siegwart, Roland ETH Zürich</td>
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<td>WeFTS1.3</td>
<td>History-Aware Autonomous Exploration in Confined Environments Using MAVs</td>
<td>Kouris, Alexandros Imperial College London, Bouganis, Christos-Savvas Imperial College London, Vaughan, Richard Imperial College London</td>
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<td>WeFTS1.4</td>
<td>Learning to Fly by MySelf: A Self-Supervised CNN-Based Approach for Autonomous Navigation</td>
<td>Stevens, Jean-Luc Australian National University, Mahony, Robert Australian National University, Azevedo Coste, Christine INRIA, Gracies, Jean-Michel APHP - CHU Henri Mondor, Mohammed, Samer University of Paris Est Créteil - UPEC</td>
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<td>WeFTS1.5</td>
<td>Hands and Faces, Fast: Mono-Camera User Detection Robust Enough to Directly Control a UAV in Flight</td>
<td>Stevens, Jean-Luc Australian National University, Mahony, Robert Australian National University, Azevedo Coste, Christine INRIA, Gracies, Jean-Michel APHP - CHU Henri Mondor, Mohammed, Samer University of Paris Est Créteil - UPEC</td>
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<td>WeFTS1.6</td>
<td>Vision Based Forward Sensitive Reactive Control for a Quadrotor VTOL</td>
<td>Stevens, Jean-Luc Australian National University, Mahony, Robert Australian National University, Azevedo Coste, Christine INRIA, Gracies, Jean-Michel APHP - CHU Henri Mondor, Mohammed, Samer University of Paris Est Créteil - UPEC</td>
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**WeETS10 Room 4.R1**

**Special Session: Functional Electrical Stimulation and Wearable Robots - towards a Hybrid Solution for Movement Restoration (Regular session)**

**Chair:** Fraisse, Philippe LIRMM

**WeETS10.1**

crete University Berlin, Seel, Thomas TU Berlin, Massmann, Jonas Technische Universität Berlin, Freeman, Chris T University of Southampton, Schauer, Thomas Technische Universität Berlin

**WeETS10.2**

Iterative Learning Vector Field for FES-Supported Cyclic Upper Limb Movements in Combination with Robotic Weight Compensation (I), pp. 5163-5168.

Gil, Javier Spanish National Research Council (CSIC), Sánchez-Villamañán, M. Carmen, Jesús, Gómez, Ortiz, Andrea Spanish National Research Council (CSIC), del-Am, Antonio J. National Hospital for Paraplegics, Pons, Jose Luis Spanish Research Council, Moreno, Juan C. Cajal Institute, CSIC

**WeETS10.3**


Alouaine, Mohamed Amine Université Paris Est Créteil, France, Rifai, Hala University of Paris Est Créteil, Amirat, Yacine University of Paris Est Créteil (UPEC), Mohammed, Samer University of Paris Est Créteil - UPEC

**WeETS10.4**

New Approach of Cycling Phases Detection to Improve FES-
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**Sensory Perception III (Regular session)**

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<td>Lindenaum, Michael</td>
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<td>Youcef-Toumi, Kamal</td>
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<tr>
<td><strong>Tri-Axial Slicing for 3D Face Recognition from Adapted Rotational Invariants Spatial Moments and Minimal Keypoints Dependence, N/A.</strong></td>
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<td>Ribeiro Alexandre, Gildemar</td>
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<td>Marques Soares, José</td>
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<td>Pereira Thê, George André</td>
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<td>Aykut, Tamay</td>
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<td>Karimi, Mojtaba</td>
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<td>Burgmair, Christoph</td>
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<td>Finkenzeller, Andreas</td>
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<td>Bachhuber, Christoph</td>
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### WeFTS3

**Swarm and Multi-Robots IV (Regular session)**

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<td><strong>Co-Chair:</strong> Krajník, Tomáš</td>
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<td><strong>An Adaptive Robot for Building In-Plane Programmable Structures, pp. 5320-5327.</strong></td>
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<td>Haque, Musad</td>
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<td>Kirkpatrick, Dougals</td>
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<td>Karrer, Marco</td>
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<td>St-Onge, David</td>
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<td>Pincioli, Carlo</td>
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Efficient Parallel Self-Assembly under Uniform Control Inputs, N/A.

Schmidt, Arne
TU Braunschweig
Manzoor, Sheryl
University of Houston
Huang, Li
University of Houston
Becker, Aaron
University of Houston
Fekete, Sándor
Technische Universität Braunschweig


Lee, Jeongseok
University of Washington
Yi, Daqing
University of Washington
Srinivasas, Siddhartha
University of Washington

A Magnetic Manipulator Cooled with Liquid Nitrogen, N/A.

Julien, Leclerc
University of Houston
Isichei, Benedict
University of Houston
Becker, Aaron
University of Houston


Wang, Qianqian
The Chinese University of Hong Kong
Yang, Lidong
The Chinese University of Hong Kong
Yu, Jialiang
The Chinese University of Hong Kong
Vong, Chi-ian
The Chinese University of Hong Kong
Chiu, Wai YAN Philip
Chinese University of Hong Kong
Zhang, Li
The Chinese University of Hong Kong


Kaya, Mert
University of Twente
Denasi, Alper
University of Twente
Scheggi, Stefano
University of Twente
Agbagha, Erdem
Konya Selcuk University
Yoon, ChangKyu
Department of Materials Science and Engineering, Johns Hopkins University

Real-Time Force-Feedback Micromanipulation Using Mobile Microrobots with Colored Fiducials, N/A.

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Purdue University
Wang, Jianxiang
Purdue University
An, Ze
Purdue University
Adam, Georges
Purdue University
Cappelleri, David
Purdue University

Path Planning and Micromanipulation Using a Learned Model, N/A.

Venkatesan, Vinoth
Purdue University
Cappelleri, David
Purdue University

Towards Controlled Flight of the Iono-craft: A Flying Microrobot Using Electrohydrodynamic Thrust with Onboard Sensing and No Moving Parts, N/A.

Drew, Daniel S.
UC Berkeley
Lambert, Nathan
University of California, Berkeley
Schindler, Craig
University of California, Berkeley
Pister, Kristofer S. J.
University of California, Berkeley

Nanorobotic System for Precise In-Situ 3D Manufacture of Helical Microstructures, N/A.

Lu, Haojian
City University of Hong Kong
Wang, Panbing
City University of Hong Kong
Tan, Rong
City University of Hong Kong
Yang, Xiong
City University of Hong Kong
Shen, Yajing
City University of Hong Kong

Human Motion Classification Based on Multi-Modal Sensor Data for Lower Limb Exoskeletons, pp. 5431-5436.

Beil, Jonas
Karlsruhe Institute of Technology (KIT)
Ehrenberger, Isabel
Karlsruhe Institute of Technology (KIT)
Scherer, Clara
Karlsruhe Institute of Technology (KIT)
Mandery, Christian
Karlsruhe Institute of Technology (KIT)
Asfour, Tamir
Karlsruhe Institute of Technology (KIT)
A Novel Joint Torque Estimation Method and Sensory System for Assistive Lower Limb Exoskeletons, pp. 5437-5444.
Saccare, Lorenzo Fondazione Istituto Italiano Di Tecnologia
Sarakoglou, Ioannis Fondazione Istituto Italiano Di Tecnologia
Tsagarakis, Nikos Istituto Italiano Di Tecnologia

18:06-18:09 WeFTS5.3
Tanaka, Yoshiyuki Nagasaki University
Oyama, Naoki Nagasaki University
Takenaka, Takazumi Nagasaki University

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Cho, Kyeong Ho SungKyunkwan University
Kim, Youngun Sungkyunkwan University
Kim, Kihyeon Sungkyunkwan University
Park, Jae Hyeong Sungkwan University
Jung, Hosang Sungkyunkwan University
Ko, Jeong U Sungkyunkwan University
Moon, Hyungil Sungkyunkwan University
Koo, Hyo-Chol Sungkyunkwan University
Kim, Youngeun Sungkyunkwan University
Park, Jae Hyeong Sungkyunkwan University
Jung, Hosang Sungkyunkwan University
Kim, Youngeun Sungkyunkwan University
Moon, Hyungil Sungkyunkwan University
Koo, Hyo-Chol Sungkyunkwan University
Kim, Youngeun Sungkyunkwan University

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Paez Granados, Diego University of Tsukuba
Felipe
Sugimoto, Minatsu University of Tsukuba
Sugiyama, Taisei University of Tsukuba
Suzuki, Kenji University of Tsukuba

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Xu, Ruini University of Tsukuba
Zhang, Zhenxuan Georgia Institute of Technology
Vela, Patricio Georgia Institute of Technology
Maysam, Ghovanloo Georgia Institute of Technology

18:18-18:21 WeFTS5.7
Machine Learning Based Skill-Level Classification for Personal Mobility Devices Using Only Operational Characteristics, pp. 5469-5476.
Huang, Yifan Waseda University
Kamezaki, Mitsuhito Waseda University
Mori, Taiga Waseda University
Manawadu, Udara Eshan Waseda University, Tokyo
Ishihara, Tatsuya NTT
Nakano, Masanori NTT Corporation
Koshiji, Kohjun NTT
Higo, Naoki Nippon Telegraph and Telephone Corp
Tsubaki, Toshimitsu NTT
Sugano, Shigeki Waseda University

18:21-18:24 WeFTS5.8
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Kim, Minjae POSTECH
Gu, Gangyong POSTECH
Chung, Wan Kyun POSTECH

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Chair: Ishiguro, Hiroshi Osaka University
Co-Chair: Park, Young Soo Argonne National Laboratory

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Supervised Autonomous Locomotion and Manipulation for Disaster Response with a Centaur-Like Robot, pp. 5483-5490.
Klamt, Tobias University of Bonn
Rodriguez, Diego University of Bonn
Schwarz, Max University Bonn
Lenz, Christian University of Bonn
Pavlichenko, Dmytro University of Bonn
Droseschel, David University of Bonn
Behnke, Sven University of Bonn

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Slack, James Saint Louis University
DeProw, Kyle Saint Louis University
Anderson, Zach Southern Illinois University
Edwardsville
Albacete Di Bartolomeo, Ricardo Manuel
Weinberg, Jerry Southern Illinois University
Edwardsville

18:06-18:09 WeFTS6.3
Implementation of Augmented Teleoperation System Based on Robot Operating System (ROS), pp. 5497-5502.
Lee, Donghyeon Pohang University of Science and Technology(POSTECH)
Park, Young Soo Argonne National Laboratory

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Tracking-Based Depth Estimation of Metallic Pieces for Robotic Guidance, pp. 5503-5508.
Di Castro, Mario CERN, European Organization for Nuclear Research
Veiga Almagro, Carlos CERN
Lunghi, Giacomo CERN
Marin, Raul Jaume I University
Ferre, Manuel Universidad Politecnica De Madrid
Masi, Alessandro CERN (European Organization for Nuclear Research)

18:12-18:15 WeFTS6.5
Managing Off-Nominal Events in Shared Teleoperation with Learned Task Compliance, pp. 5509-5516.
Owan, Parker University of Washington
Garbin, Joseph U. of Washington
Devasia, Santosh University of Washington

18:15-18:18 WeFTS6.6
Inferring Semantic State Transitions During Telerobotic Manipulation, pp. 5517-5524.
Bauer, Adrian Simon German Aerospace Center (DLR)

Coelho, Andre Institute of Robotics and Mechatronics - German Aerospace Center
Singh, Harsimran DLR German Aerospace Center
Muskardin, Tin DLR
Balachandran, Ribin DLR
Kondak, Konstantin German Aerospace Center


Brunete, Alberto Universidad Politécnica De Madrid
Hernando, Miguel Universidad Politécnica De Madrid
Gamboa, Ernesto Universidad Politécnica De Madrid

Toward the Next Generation of Robotic Waiters, pp. 5541-5541.

Moriello, Lorenzo University of Bologna
Chiaramalli, Davide Alma Mater Studiorum, University of Bologna
Biagiotti, Luigi University of Modena and Reggio Emilia
Melchiorri, Claudio University of Bologna


Bdiwi, Mohamad Fraunhofer Institute for Machine Tools and Forming Technology IW
Hou, Shuxiao Fraunhofer IWU
Delang, Kathleen Fraunhofer Institute for Machine Tools and Forming Technology

High Power Hand with Retention Mechanism, pp. 5543-5543.

Mouri, Tetsuya Gifu University
Kawasaki, Haruhisa Gifu University

On-Chip Virtual Vortex Gear and Its Application, pp. 5544-5544.

Takayama, Toshio Tokyo Institute of Technology
Tsai, Chia-Hung Dylan National Chiao Tung University
Kaneko, Makoto Osaka University

Deformation Capture Via Self-Sensing Capacitive Arrays, pp. 5545-5545.

Glauser, Oliver ETH Zurich
Panizzo, Daniele New York University
Hilliges, Otmar ETH Zurich
Sorkine-Hornung, Olga ETH Zurich

Excuse Me, May I Say Something? a Robot Facilitating Q&A for Lectures, pp. 5546-5546.

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Shimaya, Jiro Osaka University
Hoeck, Kristian University of Manchester
Ogawa, Kohei Osaka University
Jinnai, Nobuhiko Osaka University
Yoshikawa, Yulchiro Osaka University
Ishiguro, Hiroshi Osaka University


Halmetschlager-Funek, Georg TU Wien
Prankl, Johann University of Technology Vienna
Vincze, Markus Vienna University of Technology


Zhou, Lipu Carnegie Mellon University
Li, Zimo Carnegie Mellon University
Kaess, Michael Carnegie Mellon University


Lembono, Teguh Santoso Idiap Research Institute
Suárez-Ruiz, Francisco Nanyang Technological University
Pham, Quang-Cuong NTU Singapore

Keyframe-Based Photometric Online Calibration and Color Correction, pp. 5576-5583.

Quenzel, Jan University of Bonn
Horn, Jannis University of Bonn
Stenmark, Maj  
Ganslandt, Alexander  
Svensson, Andreas  
Haage, Mathias  
Malec, Jacek  
Lund University

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Ramos, Francisco  
Scrob, Cristian  
Vazquez, Andres  
Fernandez, Raul  
Olivares, Alberto  
University of Castilla-La Mancha
Indra Sistemas, S.A
Universidad De Castilla La Mancha
Universidad De Castilla La Mancha
Universidad De Castilla-La Mancha

Lund University
### Technical Program for Thursday October 4, 2018

#### ThATS1

**Room 1.L5**  
**Aerial Systems IV (Regular session)**

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<td>ThATS1.1</td>
<td>Integration of a Canine Agent in a Wireless Sensor Network for Information Gathering in Search and Rescue Missions, pp. 5685-5690.</td>
<td>Fernandez Lozano, Jesus Universidad De Malaga, Mandow, Anthony Universidad De Malaga, Martín-Avila, Juan Universidad De Málaga (UMA), Serón, Javier University of Malaga, Martínez, Jorge L. University of Malaga, Socarras Bertiz, Carlos Universidad De La Guajira, Miranda-Páez, Jesús Universidad De Málaga (UMA), García-Cerezo, Alfonso University of Malaga</td>
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<td>Any-Time Trajectory Planning for Safe Emergency Landing, pp. 5691-5696.</td>
<td>Váňa, Petr Czech Technical University in Prague, Sláma, Jakub Czech Technical University in Prague, Faigl, Jan Czech Technical University in Prague, Paces, Pavel Czech Technical University in Prague</td>
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<td>ThATS1.4</td>
<td>State Estimate Recovery for Autonomous Quadcopters, pp. 5704-5710.</td>
<td>Beffa, Luciano ETH Zürich, Ledergerber, Anton Josef ETH Zürich, D’Andrea, Raffaello ETHZ</td>
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<td>09:12-09:15</td>
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<td>A Revisited Approach to Lateral Acceleration Modeling for Quadrotor UAVs State Estimation, pp. 5711-5718.</td>
<td>Sartori, Daniele Shanghai Jiao Tong University, Zou, Danping Shanghai Jiao Tong University, Pei, Ling Shanghai Jiao Tong University, Yu, Wenxian Shanghai Jiao Tong University</td>
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<td>Assisted Control for Semi-Autonomous Power Infrastructure Inspection Using Aerial Vehicles, pp. 5719-5726.</td>
<td>McFadyen, Aaron Queensland University of Technology, Dayoub, Feras Queensland University of Technology, Martin, Steven Colin Queensland University of Technology</td>
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**Room 2.L5 KUKA**  
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<td>ThATS2.1</td>
<td>Incremental Semi-Supervised Learning from Streams for Object Classification, pp. 5743-5749.</td>
<td>Chiotellis, Ioannis Technical University Munich, Zimmermann, Franziska Carl Zeiss Microscopy GmbH, Cremer, Daniel Technical University of Munich, Triebl, Rudolph German Aerospace Center (DLR)</td>
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<td>Joint 3D Proposal Generation and Object Detection from View Aggregation, pp. 5750-5757.</td>
<td>Ku, Jason University of Waterloo, Mozifian, Melissa University of Waterloo, Lee, Jungwook University of Waterloo, Harakeh, Ali University of Waterloo, Waslander, Steven Lake University of Waterloo</td>
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<td>09:09-09:12</td>
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<td>TSSD: Temporal Single-Shot Detector Based on Attention and LSTM, pp. 5758-5763.</td>
<td>Chen, Xingyu Institute of Automation, Chinese Academy of Science, Wu, Zhengxing Chinese Academy of Sciences, Yu, Junzhi Chinese Academy of Sciences</td>
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<td>ThATS2.4</td>
<td>Real-Time Clustering and Multi-Target Tracking Using Event-Based Sensors, pp. 5764-5769.</td>
<td>Barranco, Francisco University of Granada, Fumeller, Cornelia University of Maryland, Ros, Eduardo University of Granada</td>
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<td>Speeding-Up Object Detection Training for Robotics with FALKON, pp. 5770-5776.</td>
<td>Maiettini, Elisa ICub Facility, Istituto Italiano Di Tecnologia and DIBRIS, Unive, Pasquale, Giulia Istituto Italiano Di Tecnologia, Rosasco, Lorenzo Istituto Italiano Di Tecnologia &amp; Massachusetts Institute Of Techn, Natale, Lorenzo Istituto Italiano Di Tecnologia</td>
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**Bidirectional Thrust for Multirotor MAVs with Fixed-Pitch Propellers, pp. 5727-5734.**  
Maier, Moritz German Aerospace Center (DLR)

**DREGON: Dataset and Methods for UAV-Embedded Sound Source Localization, pp. 5735-5742.**  
Strauss, Martin Friedrich-Alexander University, Mordel, Pol CNRS/IRISA Rennes, Miguez, Victor ENS Rennes, Deleforge, Antoine Inria Rennes - Bretagne Atlantique
Disparity Sliding Window: Object Proposals from Disparity Images, pp. 5777-5784.
Müller, Julian University of Ulm
Fregin, Andreas Daimler AG
Dietmayer, Klaus University of Ulm
09:18-09:21 ThATS2.7
Alonso, Iñigo University of Zaragoza
Murillo, Ana Cristina University of Zaragoza
09:21-09:24 ThATS2.8
Real-Time Segmentation with Appearance, Motion and Geometry, pp. 5793-5800.
Siam, Mennatullah University of Alberta
Elkerdawy, Sara University of Alberta
Gamal, Mostafa Cairo University
Abdelrazek, Moemen Cairo University
Jagersand, Martin University of Alberta
Zhang, Hong University of Alberta
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Chair: Ude, Ales Jozef Stefan Institute
Jin, Beibei Institute of Computing Technology, Chinese Academy of Sciences
Hu, Yu Institute of Computing Technology Chinese Academy of Sciences
Zeng, Yiming Institute of Computing Technology, Chinese Academy of Sciences
Tang, Qiankun The Institute of Computing Technology of the Chinese Academy Of Sciences
Liu, Shice Institute of Computing Technology Chinese Academy of Sciences
Ye, Jing Institute of Computing Technology, Chinese Academy of Sciences
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Bovcon, Borja Faculty of Computer and Information Science, University of Ljubljana
Kristan, Matej University of Ljubljana
09:06-09:09 ThATS3.3
Efficient Absolute Orientation Revisited, pp. 5813-5818.
Lourakis, Manolis Foundation for Research and Technology -- Hellas
Terzakis, George University of Portsmouth
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Mateus, André Institute for Systems and Robotics, LARSyS, Instituto Superior T
Tahri, Omar INSA Centre Val-De-Loire
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Li, Shi-Jie Nankai University
Cheng, Ming-Ming Nankai University, Tianjin
Liu, Yun Nankai University
Lu, Shao-Ping Nankai University
Prisacariu, Victor University of Oxford
Wang, Yahui Nankai University
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Stereo Camera Localization in 3D LiDAR Maps, pp. 5826-5833.
Kim, Youngji Korea Advanced Institute of Science and Technology
Jeong, Jinyong KAIST
Kim, Ayoung Korea Advanced Institute of Science Technology
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A Plug-In Feed-Forward Control for Sloshing Suppression in Robotic Teleoperation Tasks, pp. 5855-5860.
Biagiotti, Luigi University of Modena and Reggio Emilia
Moriello, Lorenzo University of Bologna
Chiaravalli, Davide Alma Mater Studiorum, University of Bologna
Melchiorri, Claudio University of Bologna
09:03-09:06 ThATS4.2
Elastic Structure Preserving Impedance (ESP) Control for Compliantly Actuated Robots, pp. 5861-5866.
Keppler, Manuel German Aerospace Center (DLR)
Lakatos, Dominic German Aerospace Center (DLR)
Ott, Christian German Aerospace Center (DLR)
Albu-Schäffer, Alin DLR - German Aerospace Center
09:06-09:09 ThATS4.3
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Development of a Pneumatically Driven Flexible Finger with Feedback Control of a Polyurethane Bend Sensor, pp. 5952-5957.


Liquid Metal-Microelectronics Integration for a Sensorized Soft Robot Skin, pp. 5924-5929.

Design for Control of a Soft Bidirectional Bending Actuator, pp. 5936-5943.
Motion Generators Combined with Behavior Trees: A Novel Approach to Skill Modelling, pp. 5964-5971.
Rovida, Francesco Aalborg University Copenhagen
Wuthier, David Aalborg University Copenhagen
Grossmann, Bjarne Aalborg University Copenhagen
Fumagalli, Matteo Aalborg University
Krueger, Volker Aalborg University Copenhagen

Enhanced Explosive Motion for Torque Controlled Actuators through Field Weakening Control, pp. 5972-5979.
Roozing, Wesley Istituto Italiano Di Tecnologia
Kashiri, Navvab Istituto Italiano Di Tecnologia
Tsagarakis, Nikos Istituto Italiano Di Tecnologia

Rigotti-Thompson, Mattia Pontificia Universidad Catolica De Chile
Torres-Torriti, Miguel Pontificia Universidad Catolica De Chile
Auat Cheein, Fernando Universidad Tecnica Federico Santa Maria
Troni, Giancarlo Pontificia Universidad Catolica De Chile

Computationally-Robust and Efficient Prioritized Whole-Body Controller with Contact Constraints, pp. 5987-5994.
Kim, Donghyun University of Texas at Austin
Lee, Jaemin University of Texas at Austin
Ahn, Junhyeok University of Texas at Austin
Campbell IV, Orion University of Texas at Austin
Hwang, Hochul Hanyang University
Sentis, Luis The University of Texas at Austin

Kramberger, Aljaz Maersk Mc-Kinney Møller Institute, University of Southern Denmark
Shahriari, Erfan Technical University of Munich
Gams, Andrej Jozef Stefan Institute
Nemec, Bojan Jozef Stefan Institute
Ude, Ales Jozef Stefan Institute
Haddadin, Sami Technical University of Munich

Robust Robot Learning from Demonstration and Skill Repair Using Conceptual Constraints, pp. 6029-6036.
Mueller, Carl Louis University of Colorado Boulder
Venicx, Jeff University of Colorado Boulder
Hayes, Bradley University of Colorado Boulder

Kernel-Based Human-Dynamics Inversion for Precision Robot Motion-Primitives, pp. 6037-6042.
Warrier, Rahul Balakrishna University of Washington, Seattle
Devasia, Santosh University of Washington

Assiative Skill Memory Models, pp. 6043-6048.
Girgin, Hakan Boğaziçi University
Ugur, Emre Bogazici University

Towards Intelligent Arbitration of Diverse Active Learning Queries, pp. 6049-6056.
Bullard, Kalesha Georgia Institute of Technology
Chernova, Sonia Georgia Institute of Technology

Segmenting and Sequencing of Compliant Motions, pp. 6057-6064.
Hagos, Tesfamichael Aalto University
Marikos...
Suomalainen, Markku Heikki  
Kyrki, Ville  
Aalto University

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An Uncertainty-Aware Minimal Intervention Control Strategy Learned from Demonstrations, pp. 6065-6071.

Silvério, João  
Huang, Yanlong  
Rozo, Leonel  
Caldwell, Darwin G.  
Istituto Italiano Di Tecnologia  
Istituto Italiano Di Tecnologia  
Istituto Italiano Di Tecnologia  
Istituto Italiano Di Tecnologia

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ThATS7.8  
Generative Low-Shot Network Expansion, pp. 6072-6077.

Iida, Fumiya  
Hughes, Josie  
Gilday, Kieran  
Iida, Fumiya  
MIT  
University of Cambridge  
University of Cambridge  
University of Cambridge

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Cheng, Xianyi  
Jia, Zhenzhong  
Bhatia, Ankit  
Aronson, Reuben  
Mason, Matthew T.  
Carnegie Mellon University  
Carnegie Mellon University  
Carnegie Mellon University  
Carnegie Mellon University  
Carnegie Mellon University

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Paxton, Chris  
Jonathan, Felix  
Hundt, Andrew  
Mutlu, Bilge  
Hager, Gregory  
Johns Hopkins University  
Johns Hopkins University  
Johns Hopkins University  
University of Wisconsin–Madison  
Johns Hopkins University

09:06-09:09  
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Nakamoto, Hideichi  
Ohtake, Masashi  
Komoda, Kazuma  
Sugahara, Atsushi  
Ogawa, Akihito  
Toshiba Corporation  
Toshiba Infrastructure Systems & Solutions Corporation  
Toshiba Corporation  
Toshiba Corporation  
TOSHIBA CORPORATION

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Dementyev, Artem  
Jie, Qi  
Ou, Jifei  
Paradiso, Joseph  
MIT  
MIT Media Lab  
MIT Media Lab  
MIT Media Lab

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Gilday, Kieran  
Hughes, Josie  
Iida, Fumiya  
University of Cambridge  
University of Cambridge  
University of Cambridge

09:15-09:18  
ThATS8.6  
Experimental Verification of a Magnetic Levitation Transport System for the OLED Display Evaporation Process under Vacuum, N/A.

Ha, Chang-Wan  
Kim, Chang-Hyun  
Lim, Jaewon  
Korea Institute of Machinery & Materials (KIMM), KOREA  
Korea Institute of Machinery and Materials (KIMM)  
Korea Institute of Machinery & Materials (kimm)

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Casalino, Andrea  
Guzman, Sebastian  
Zanchettin, Andrea Maria  
Rocco, Paolo  
Politecnico Di Milano  
Politecnico Di Milano  
Politecnico Di Milano  
Politecnico Di Milano

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Kyrkjebø, Erik  
Laastad, Mads Johan  
Stavdahl, Øyvind  
Western Norway University of Applied Sciences  
Norwegian University of Science and Technology  
Norwegian University of Science and Technology (NTNU)

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Di Lillo, Paolo Augusto  
Arrighiello, Filippo  
Antonelli, Gianluca  
University of Cassino and Southern Lazio  
Università Di Cassino E Del Lazio  
Univ. of Cassino and Southern Lazio

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Yakymets, Nataliya  
Sango, Marc  
Chiaverini, Stefano  
CEA  
Al4Tec  
Università Di Cassino E Del Lazio

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Sloth, Christoffer  
Petersen, Henrik Gordon  
University of Southern Denmark  
University of Southern Denmark

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Patel, Naman  
Saridena, Apoorva Nandini  
New York University Tandon  
New York University Tandon  
School of Engineering  
School of Engineering
Inspection System for Automatic Measurement of Level Differences in Belt Conveyors Using Inertial Measurement Unit, pp. 6155-6161.

Safe Reinforcement Learning on Autonomous Vehicles, pp. 6162-6167.


Ceiling Effects for Surface Locomotion of Small Rotorcraft, pp. 6214-6219.

Autonomous Grasping Robotic Aerial System for Perching (AGRASP), pp. 6220-6225.
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<td>Bicego, Davide (LAAS-CNRS)</td>
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<td>Ryll, Markus (MIT)</td>
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<td>RuizPaez, Cristina (German Aerospace Center)</td>
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<td>Oettershagen, Philipp (ETH Zurich)</td>
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<td>Stastny, Thomas (Swiss Federal Institute of Technology (ETH Zurich))</td>
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<td>Sa, Inkyu (ETH Zurich)</td>
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<td>Siegwart, Roland (ETH Zurich)</td>
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<td>Kondak, Konstantin (German Aerospace Center)</td>
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<td>Design and Implementation of Cloud-Like Soft Drone S-CLOUD</td>
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<td>Shon, Hyun Wook (Sungkyunkwan University)</td>
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<td>Yeon, Gyu Yang (SUNGKYUNKWAN UNIVERSITY)</td>
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<td>Choi, Hyouk Ryoe (Sungkyunkwan University)</td>
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<td>Shart, Inna (McGill University)</td>
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<td>Guillard, lain (CSIRO)</td>
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<td>Iacono, Massimiliano (Istituto Italiano Di Tecnologia)</td>
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<td>Weber, Stefan (Istituto Italiano Di Tecnologia)</td>
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<td>Glover, Arren (Istituto Italiano Di Tecnologia)</td>
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<td>Bartolozzi, Chiara (Istituto Italiano Di Tecnologia)</td>
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<td>Vincze, Markus (Vienna University of Technology)</td>
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<td>Blank, Andreas (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Institu)</td>
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<td>Puljiz, David (Karlsruhe Institute of Technology)</td>
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<td>Zenkel, Lothar (Framatome GmbH, Instrumentation &amp; Control - Autonomous Systems)</td>
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<td>Kohn, Sebastian (Framatome GmbH, Instrumentation &amp; Control - Autonomous Systems)</td>
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<td>Blank, Andreas (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Institu)</td>
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<td>Puljiz, David (Karlsruhe Institute of Technology)</td>
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<td>DROAN - Disparity-Space Representation for Obstacle Avoidance</td>
<td>Dubey, Geetesh (Carnegie Mellon University)</td>
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<td>Madaan, Ratnesh (Carnegie Mellon University)</td>
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<td>Scherer, Sebastian (Carnegie Mellon University)</td>
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Co-Chair: Yang, Lidong  The Chinese University of Hong Kong

Roboticentric Visual-Inertial Odometry, pp. 6319-6326.
Huai, Zheng  University of Delaware
Huang, Guoquan  University of Delaware

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Appearance-Based Along-Route Localization for Planetary Missions, pp. 6327-6334.
Grixa, Iris Lynne  German Aerospace Center (DLR)
Schulz, Philipp Tobias  Deutsches Zentrum Für Luft Und Raumfahrt
Stuerzl, Wolfgang  DLR, Institute of Robotics and Mechatronics
Triebel, Rudolph  German Aerospace Center (DLR)

11:36-11:39  ThBTS3.3

A Monocular Indoor Localiser Based on an Extended Kalman Filter and Edge Images from a Convolutional Neural Network, pp. 6335-6340.
Unicomb, James  University of Technology, Sydney
Ranasinghe, Ravindra  University of Technology Sydney
Dantanarayana, Lakshitha  University of Technology, Sydney
Dissanayake, Gamini  University of Technology Sydney

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Automated Map Reading: Image Based Localisation in 2-D Maps Using Binary Semantic Descriptors, pp. 6341-6348.
Panphattarasap, Pilailuck  University of Bristol
Calway, Andrew  University of Bristol

11:42-11:45  ThBTS3.5

Interval-Based Cooperative UAVs Pose Domain Characterization from Images and Ranges, pp. 6349-6356.
Kennougne, Idré-Flore  INRIA
Drevelle, Vincent  Université De Rennes 1, IRISA, INRIA Rennes
Marchand, Eric  Université De Rennes 1, IRISA, INRIA Rennes

11:45-11:48  ThBTS3.6

Joint Point Cloud and Image Based Localization for Efficient Inspection in Mixed Reality, pp. 6357-6363.
Das, Manash Pratim  Indian Institute of Technology Kharagpur
Dong, Zhen  Wuhan University
Scherer, Sebastian  Carnegie Mellon University

11:48-11:51  ThBTS3.7

Probabilistic Dense Reconstruction from a Moving Camera, pp. 6364-6371.
Ling, Yonggen  Tencent AI Lab
Wang, Kaixuan  Hong Kong University of Science and Technology
Shen, Shaojie  Hong Kong University of Science and Technology

11:51-11:54  ThBTS3.8

Summarizing Large Scale 3D Mesh, pp. 6372-6377.
Ben Salah, Imeen  Université De Rouen
Kramm, Sébastien  Université De Rouen
Demenceaux, Cédric  Université Bourgogne Franche-Comté
Vasseur, Pascal  Université De Rouen

11:30-11:33  ThBTS4.1

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Roboticentric Visual-Inertial Odometry, pp. 6319-6326.
Huai, Zheng  University of Delaware
Huang, Guoquan  University of Delaware

11:33-11:36  ThBTS4.2

Appearance-Based Along-Route Localization for Planetary Missions, pp. 6327-6334.
Grixa, Iris Lynne  German Aerospace Center (DLR)
Schulz, Philipp Tobias  Deutsches Zentrum Für Luft Und Raumfahrt
Stuerzl, Wolfgang  DLR, Institute of Robotics and Mechatronics
Triebel, Rudolph  German Aerospace Center (DLR)

11:36-11:39  ThBTS4.3

A Monocular Indoor Localiser Based on an Extended Kalman Filter and Edge Images from a Convolutional Neural Network, pp. 6335-6340.
Unicomb, James  University of Technology, Sydney
Ranasinghe, Ravindra  University of Technology Sydney
Dantanarayana, Lakshitha  University of Technology, Sydney
Dissanayake, Gamini  University of Technology Sydney

11:39-11:42  ThBTS4.4

Automated Map Reading: Image Based Localisation in 2-D Maps Using Binary Semantic Descriptors, pp. 6341-6348.
Panphattarasap, Pilailuck  University of Bristol
Calway, Andrew  University of Bristol

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Interval-Based Cooperative UAVs Pose Domain Characterization from Images and Ranges, pp. 6349-6356.
Kennougne, Idré-Flore  INRIA
Drevelle, Vincent  Université De Rennes 1, IRISA, INRIA Rennes
Marchand, Eric  Université De Rennes 1, IRISA, INRIA Rennes

11:45-11:48  ThBTS4.6

Joint Point Cloud and Image Based Localization for Efficient Inspection in Mixed Reality, pp. 6357-6363.
Das, Manash Pratim  Indian Institute of Technology Kharagpur
Dong, Zhen  Wuhan University
Scherer, Sebastian  Carnegie Mellon University

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Ling, Yonggen  Tencent AI Lab
Wang, Kaixuan  Hong Kong University of Science and Technology
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Summarizing Large Scale 3D Mesh, pp. 6372-6377.
Ben Salah, Imeen  Université De Rouen
Kramm, Sébastien  Université De Rouen
Demenceaux, Cédric  Université Bourgogne Franche-Comté
Vasseur, Pascal  Université De Rouen
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**A Universal Gripper Using Optical Sensing to Acquire Tactile Information and Membrane Deformation**, pp. 6431-6436.

Sakuma, Tatsuya, Nara Institute of Science and Technology

von Drigalski, Felix Wolf, Nara Institute of Science and Technology

Ding, Ming, Nara Institute of Science and Technology

Takamatsu, Jun, Nara Institute of Science and Technology

Ogasawara, Tsukasa, Nara Institute of Science and Technology

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McInroe, Benjamin, University of California, Berkeley

Chen, Carolyn, University of California, Berkeley

Goldberg, Ken, UC Berkeley

Bajcsy, Ruzena, Univ of California, Berkeley

Fearing, Ronald, University of California at Berkeley

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Ishige, Matthew, The University of Tokyo

Umedachi, Takuya, The University of Tokyo

Taniguchi, Tadahiro, Ritsumeikan University

Kawahara, Yoshihiro, The University of Tokyo

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**Soft Inflatable Sensing Modules for Safe and Interactive Robots, N.A.**

Kim, Taekyoung, Seoul National University

Yoon, Sohee John, Seoul National University

Park, Yong-Lae, Seoul National University

#### ThBTS5.4


Licht, Stephen, University of Rhode Island

Rizzo, Domenico, University of Rhode Island

Badlissi, George, University of Rhode Island

Collins, Everett, University of Rhode Island

#### ThBTS5.5


Friedl, Werner, German AerospaceCenter (DLR)

Hoepner, Hannes, DLR - German Aerospace Center

Schmidt, Florian, German Aerospace Center

Rao, Maximo A., DLR - German Aerospace Center

Grebenstein, Markus, German Aerospace Center (DLR)

### ThBTS6

#### Sampling-Based Motion Planning (Regular session)

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Kuo, Yen-Ling, MIT

Barbu, Andrei, MIT

Katz, Boris, MIT

#### ThBTS6.1

**A Topology-Based Path Similarity Metric and Its Application to Sampling-Based Motion Planning**, pp. 6498-6505.

Denny, Jory, University of Richmond

Chen, Kaiwen, University of Richmond

Zhou, Hanglin, University of Richmond

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Golbol, Ferhat, Middle East Technical University

Ankarali, Mustafa Mert, Middle East Technical University

Saranli, Afsar, Middle East Technical University

#### ThBTS6.3


Fisher, Richard, University of the Witwatersrand

Rosman, Benjamin, CSIR

Ivan, Vladimir, University of Edinburgh
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<td>Nguyen, Dong Hai Phuong, Istituto Italiano Di Tecnologia; Fischer, Tobias, Imperial College London; Chang, Hyung Jin, University of Birmingham; Pattacini, Ugo, Istituto Italiano Di Tecnologia; Metta, Giorgio, Istituto Italiano Di Tecnologia (IIT)</td>
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Chair: Duriez, Christian INRIA
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Oota, Satoshi, RIKEN
Okamura-Oho, Yuko, Jissen Women's University
Ayusawa, Ko, AIST
Ikemagi, Youkai, University of Tokyo
Murai, Akihiko, The National Institute of Advanced Industrial Science and Technology
Yoshida, Eiichi, National Inst. of AIST
Nakamura, Yoshihiko, University of Tokyo

ThCTS1
Room 1.L5
Aerial Systems VI (Regular session)

Chair: Detweiler, Carrick
Co-Chair: Bicego, Davide

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ThCTS1.1 Temporally Smooth Privacy-Protected Airborne Videos, pp. 6728-6733.

Sarwar, Omair, Alpen-Adria-Universität Klagenfurt
Cavallaro, Andrea, Queen Mary University of London
Rinner, Bernhard, Klagenfurt University

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ThCTS1.2 Impedance Based Force Control for Aerial Robot Peg-In-Hole Insertion Tasks, pp. 6734-6739.

Car, Marko, Faculty of Electrical Engineering and Computing
Ivanovic, Antun, University of Zagreb, Faculty of Electrical Engineering and Computing
Orsag, Matko, University of Zagreb
Bogdan, Stjepan, University of Zagreb

12:36-12:39
ThCTS1.3 Flatness-Based Model Predictive Control for Quadrotor Trajectory Tracking, pp. 6740-6745.

Greeff, Melissa, University of Toronto
Schoellig, Angela P., University of Toronto

12:39-12:42
ThCTS1.4 Lightweight and Compliant Long Reach Aerial Manipulator for Inspection Operations, pp. 6746-6752.

Suarez, Alejandro, University of Seville
Sanchez-Cuevas, Pedro J, University of Seville
Manuel J, Fernandez, University of Seville
Perez Garcia, Manuel, University of Seville
Heredia, Guillermo, University of Seville
Oltero, Anibal, University of Seville

12:42-12:45
ThCTS1.5 Model Predictive Trajectory Tracking and Collision Avoidance for Reliable Outdoor Deployment of Unmanned Aerial Vehicles, pp. 6753-6760.

Baca, Tomas, Czech Technical University in Prague
Hert, Daniel, Czech Technical University in Prague
Loiano, Giuseppe, New York University
Kumar, Vijay, University of Pennsylvania
Saska, Martin, Czech Technical University in Prague

12:45-12:48
ThCTS1.6 MGRAPH: A Multi-Graph Homography Method to Generate Incremental Mosaics in Real Time from UAV Swarms, N/A

ThCTS2
Room 2.L5 KUKA
Sensorial Perception VI (Regular session)

Chair: Meng, Max Q.-H., The Chinese University of Hong Kong
Co-Chair: Zanchettin, Andrea Politecnico Di Milano

12:30-12:33
ThCTS2.1 SOS: Stereo Matching in O(1) with Slanted Support Windows, pp. 6782-6789.

Tankovich, Vladimir, Google
Schoenberg, Michael, Google
Fanello, Sean Ryan, Google
Kowdle, Adarsh, Google
Rhemann, Christoph, Microsoft
Schmidt, Mirko, Google
Dzitsiuk, Max, Google
Valentin, Julien, Perceptive IO
Izadi, Shahram, Microsoft

12:33-12:36
ThCTS2.2 The RobotriX: An Extremely Photorealistic and Very-Large-Scale Indoor Dataset of Sequences with Robot Trajectories and Interactions, pp. 6790-6797.

Garcia-Garcia, Alberto, 3D Perception Lab, University of Alicante
Martinez-Gonzalez, Pablo, 3D Perception Lab, University of Alicante
Oprea, Sergiu, 3D Perception Lab, University of Alicante
Castro-Vargas, John, 3D Perception Lab, University of Alicante
Onts-Escalon, Sergio, University of Alicante
Garcia Rodriguez, Jose, Universidad De Alicante
Jover Alvarez, Alvaro, University of Alicante

12:36-12:39
ThCTS2.3 Real-Time Object Pose Estimation with Pose Interpreter Networks, pp. 6798-6805.

Wu, Jimmy, Massachusetts Institute of Technology
Zhou, Bolei, MIT
Russell, Rebecca, Draper
Kee, Vincent, Massachusetts Institute of Technology
Coping with Context Change in Open-Ended Object Recognition without Explicit Context Information, pp. 6806-6812.
Mohades Kasaei, Seyed Hamidreza
Seabra Lopes, Luís
Tomé, Ana Maria

Fast Cylinder and Plane Extraction from Depth Cameras for Visual Odometry, pp. 6813-6820.
Proença, Pedro F.
Gao, Yang

Exploiting Points and Lines in Regression Forests for RGB-D Camera Relocalization, pp. 6827-6834.
Meng, Lili
Tung, Frederick
Little, James J.
Valentin, Julien
de Silva, Clarence

Incremental Object Database: Building 3D Models from Multiple Partial Observations, pp. 6835-6842.
Furrer, Fadri
Novkovic, Tonci
Fehr, Marius
Gawel, Abel Roman
Grinvald, Margarita
Sattler, Torsten
Siegwart, Roland
Nieto, Juan

Burchfiel, Benjamin
Konidaris, George

Submap-Based Pose-Graph Visual SLAM: A Robust Visual Exploration and Localization System, pp. 6851-6856.
Chen, Weinan

Ye, Xin
Lin, Zhe
Li, Haoxiang
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Yang, Yezhou

Learning Monocular Visual Odometry with Dense 3D Mapping from Dense 3D Flow, pp. 6864-6871.
Zhao, Cheng
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Purkait, Pulak
Duckett, Tom
Stolkin, Rustam

Unit Quaternion-Based Parameterization for Point Features in Visual Navigation, pp. 6880-6886.
Maley, James
Huang, Guoquan

Event-Based Moving Object Detection and Tracking, pp. 6895-6902.
Mitrokhin, Anton
Fermuller, Cornelia
Parameshwara, Chethan
Aloimonos, Yiannis

Gillthaier, Markus

Room 1.L2

Vision-Based Navigation III (Regular session)
Chair: Dayoub, Feras
Co-Chair: Huang, Guoquan

Control III (Regular session)
Chair: Surdilovic, Drageljub
Co-Chair: Huang, Yanlong
### ThCTS4.2


Han, Weiqiao Massachusetts Institute of Technology
Tedrake, Russ Massachusetts Institute of Technology

12:33-12:36

### ThCTS4.3


Ogunmolu, Olalekan University of Texas at Dallas
Gans, Nicholas (Nick) University of Texas at Dallas
Summers, Tyler University of Texas at Dallas

12:36-12:39

### ThCTS4.4


Kim, Hyomin KwangWoon Univ
Kwon, Jaesung Kwangwoon University
Oh, Yonghwan Korea Institute of Science & Technology (KIST)
You, Bum Jae KIST
Yang, Woosung Kwangwoon University

12:39-12:42

### ThCTS4.5


Haninger, Kevin UC Berkeley
Surdilovic, Dragoljub Fraunhofer IPK

12:42-12:45

### ThCTS4.6


Li, Qiang Bielefeld University
Ückermann, Andre Bielefeld University
Haschke, Robert Bielefeld University
Ritter, Helge Joachim Bielefeld University

12:45-12:48

### ThCTS4.7


Gawron, Tomasz Poznan University of Technology, Institute of Automation and Robotic Technology (PUT)
Michalek, Maciej, Marcin Poznan University of Technology (PUT)

12:48-12:51

### ThCTS4.8

**ASPiC: An Acting System Based on Skill Petri Net Composition**, pp. 6952-6958.

Lesire, Charles ONERA
Pommerewiu, Franck IBISC, University of Évry / Paris-Saclay

12:51-12:54

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**Soft Robotics III** (Regular session)

**Room 2.R3**

12:30-12:33

**ThCTS5.1**


Stilli, Agostino University College London
Kolokotronis, Efstathios University College London
Fras, Jan Queen Mary University of London
Ataka, Ahmad King’s College London
Althoefer, Kaspar Queen Mary University of London
Wurdemann, Helge Arne University College London

### ThCTS5.2


Thalman, Carly Arizona State University
Lam, Quoc Arizona State University
Pham, Huyn Nguyen Arizona State University
Sridar, Salvinal Arizona State University
Polygerinos, Panagiotis Arizona State University

12:33-12:36

### ThCTS5.3

**Robotic Handling of Compliant Food Objects by Robust Learning from Demonstration**, pp. 6972-6979.

Misimi, Ekrem SINTEF Ocean
Olofsson, Alexander SINTEF Fisheries and Aquaculture
Eriksen, Aleksander SINTEF Ocean
Öye, Elling Ruud SINTEF Fisheries and Aquaculture
Mathiassen, John Reidar SINTEF Ocean AS

12:36-12:39

### ThCTS5.4

**Closed-Loop Temperature Control of Nylon Artificial Muscles**, pp. 6980-6985.

Haines, Carter The University of Texas at Dallas
Niemeyer, Günter Disney Research

12:39-12:42

### ThCTS5.5


Zöller, Gabriel Donald TU Berlin
Wall, Vincent TU Berlin
Brock, Oliver Technische Universität Berlin

12:42-12:45

### ThCTS5.6


Funabora, Yuki Nagoya University

12:45-12:48

### ThCTS5.7


Fras, Jan Queen Mary University of London
Althoefer, Kaspar Queen Mary University of London

12:48-12:51

### ThCTS5.8

**A Novel All-In-One Manufacturing Process for a Soft Sensor System and Its Application to a Soft Sensing Glove**, pp. 7004-7009.

Kim, Suin Ulsan National Institute of Science and Technology
Jeong, Dahee UNIST
Oh, Jinhyeok UNIST
Park, Wookeun UNIST
Bae, Joonbum UNIST

12:51-12:54
Mobile Continuum Robot with Unlimited Extensible Sections, pp. 7117-7122.

Kanada, Ayato
Toyohashi University of Technology

Mashimo, Tomoaki
Toyohashi University of Technology

ThCTS8
Dual Arm and Mobile Manipulation (Regular session)
Chair: del Pobil, Angel P.
Co-Chair: Doulgeri, Zoe

12:30-12:33
Multi-Stage Learning of Selective Dual-Arm Grasping Based on Obtaining and Pruning Grasping Points through the Robot Experience in the Real World, pp. 7123-7130.
Kitagawa, Shingo
University of Tokyo
Wada, Kentaro
The University of Tokyo
Hasegawa, Shun
The University of Tokyo
Okada, Kei
The University of Tokyo
Inaba, Masayuki
The University of Tokyo

12:33-12:36
Bimanual Assembly of Two Parts with Relative Motion Generation and Task Related Optimization, pp. 7131-7136.
Stavridis, Sotiris
Aristotle University of Thessaloniki
Doulgeri, Zoe
Aristotle University of Thessaloniki

12:36-12:39
Dual-Arm Coordinated Motion Planning and Compliance Control for Capturing Moving Objects with Large Momentum, pp. 7137-7144.
Yan, Lei
Harbin Institute of Technology
Yang, Yiming
University of Edinburgh
Xu, Wenfu
Harbin Institute of Technology
Vijayakumar, Sethu
University of Edinburgh

12:39-12:42
A Model Predictive Control Approach for Vision-Based Object Grasping Via Mobile Manipulator, pp. 7145-7150.
Logothetis, Michalis
National Technical University of Athens, School of Mechanical Engineering
Karras, George
National Technical University of Athens
Heshmati-Alamdari, Shahab
NTUA
Vlantis, Panagiotis
National Technical University of Athens
Kyrakashoulous, Kostas
National Technical University of Athens

12:42-12:45
Furukawa, Tomonari
Virginia Polytechnic Institute and State University
Dissanayake, Gamini
University of Technology Sydney
Atta, Tamer
Virginia Tech
Hodges, Jonathan
Virginia Tech

12:45-12:48
Coupling Mobile Base and End-Effector Motion in Task Space, pp. 7158-7163.
Welschehold, Tim
Albert-Ludwigs-Universität Freiburg
Dornhege, Christian
University of Freiburg

Paus, Fabian
Karlsruhe Institute of Technology (KIT)
Asfour, Tamir
Karlsruhe Institute of Technology (KIT)
Burgard, Wolfram
University of Freiburg

12:48-12:51
Motion Planning for an Underwater Mobile Manipulator by Exploiting Loose Coupling, pp. 7164-7171.
Youakim, Dina
University of Girona
Dornbush, Andrew
Carnegie Mellon University
Likachev, Maxim
Carnegie Mellon University
Rido, Pere
Universitat De Girona

12:51-12:54
Dynamic Model Learning and Manipulation Planning for Objects in Hospitals Using a Patient Assistant Mobile (PAM) Robot, pp. 7172-7178.
Sabbagh Novin, Roya
University of Utah
Yazdani, Amir
University of Utah
Hermans, Tucker
University of Utah
Merryweather, Andrew
University of Utah

ThCTS9
Perception for Grasping and Manipulation II (Regular session)
Co-Chair: From, Pål Johan
Norwegian University of Life Sciences

12:30-12:33
Capacitive Proximity Sensor Skin for Contactless Material Detection, pp. 7179-7184.
Ding, Yitao
Chemnitz University of Technology
Zhang, Hongyin
Chemnitz University of Technology
Thomas, Ulrike
Technical University of Chemnitz

12:33-12:36
Teaching a Robot to Grasp Real Fish by Imitation Learning from a Human Supervisor in Virtual Reality, pp. 7185-7192.
Dyrsdahl, Jonatan Sjøland
SINTEF
Øye, Elling Ruud
SINTEF Fisheries and Aquaculture
Stahl, Annette
Norwegian University of Science and Technology (NTNU)
Mathiassen, John Reidar
SINTEF Ocean AS

12:36-12:39
Seeing behind the Scene: Using Symmetry to Reason about Objects in Cluttered Environments, pp. 7193-7200.
Ecins, Aleksandrs
University of Maryland College Park
Fermüller, Cornelia
University of Maryland
Alomonsi, Yiannis
University of Maryland

12:39-12:42
Dong, Huixu
Nanyang Technological University
Prasad, Dilip
Nanyang Technological University
Yuan, Gilon
Foshan University
Zhou, Jiadong
Nanyang Technological University
Asadi, Ehsan
Nanyang Technological University
Chen, I-Ming
Nanyang Technological University
12:42-12:45  ThCTS9.5
Zhou, Zheming  University of Michigan
Sui, Zhijiang  University of Michigan
Jenkins, Odest Chadwicke  University of Michigan

12:45-12:48  ThCTS9.6
Pose Estimation for Objects with Rotational Symmetry, pp. 7215-7222.
Corona, Enric  University of Toronto
Kundu, Kaustav  University of Toronto
Fidler, Sanja  University of Toronto

12:48-12:51  ThCTS9.7
Fully Convolutional Grasp Detection Network with Oriented Anchor Box, pp. 7223-7230.
Zhou, Xinwen  Xi'an Jiaotong University
Lan, Xuguang  Xi'an Jiaotong University
Zhang, Hanbo  Xi'an Jiaotong University
Zhang, Yang  Xi'an Jiaotong University
Zheng, Nanning  Xi'an Jiaotong University

ThCTS10  Room 4.R1
Special Session: Research Reproducibility and Benchmarking of Intelligent Robots (Regular session)
Chair: Matteucci, Matteo  Politecnico Di Milano
Co-Chair: Lima, Pedro U.  Instituto Superior Técnico - Institute for Systems and Robotics

12:30-12:33  ThCTS10.1
Lima, Pedro U.  Instituto Superior Técnico - Institute for Systems and Robotics

12:33-12:36  ThCTS10.2
Amigoni, Francesco  Politecnico Di Milano
Castelli, Valerio  Politecnico Di Milano
Luperto, Matteo  Università Degli Studi Di Milano

15:33-15:36  ThDT1.2
PaintCopter: An Autonomous UAV for Spray Painting on 3D Surfaces, N.A.
Vempati, Anurag Sai  ETH Zurich, Disney Research
Kamel, Mina  Autonomous Systems Lab, ETH Zurich

15:36-15:39  ThDT1.3
Energy-Aware Spiral Coverage Path Planning for UAV Photogrammetric Applications, N.A.
Milech Cabreira, Tauã  Federal University of Pelotas
Di Franco, Carmelo  Scuola Superiore S. Anna
Ferreira Junior, Paulo  Federal University of Pelotas
Roberto  University of Zurich
Buttazzo, Giorgio C.  Scuola Superiore Sant’Anna

15:42-15:45  ThDT1.4
Computing the Forward Reachable Set for a Multicopter under First-Order Aerodynamic Effects, N.A.
Kim, Suseong  University of Maryland, College Park
Falanga, Davide  University of Maryland
Scaramuzza, Davide  University of Zurich

15:45-15:48  ThDT1.5
VI-RPE: Visual-Inertial Relative Pose Estimation for Aerial Vehicles, N.A.
Teixeira, Lucas  ETH Zurich
Mafra, Fabiola  ETH Zurich
Moos, Marco  ETH Zurich
Chil, Margarita  ETH Zurich

15:48-15:51  ThDT1.6
Fast Autonomous Flight in Warehouses for Inventory Applications, N.A.
Ozaslan, Tolga  University of Pennsylvania
Loianno, Giuseppe  University of Pennsylvania
Keller, James  Unv. of Pennsylvania

15:51-15:54  ThDT1.7
Spatio-Temporally Smooth Local Mapping and State Estimation Inside Generalized Cylinders with Micro Aerial Vehicles, N.A.
Ozaslan, Tolga  University of Pennsylvania
Loianno, Giuseppe  University of Pennsylvania
Keller, James  Unv. of Pennsylvania
### ThDTS2
**Sensorial Perception VII** (Regular session)

**Room 2.L5 KUKA**

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<td>Real-Time Feature Depth Estimation for Image-Based Visual Servoing, pp. 7314-7320.</td>
<td>Li, Xiangfei, Huazhong University of Science and Technology</td>
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<td>15:33-15:36</td>
<td>ThDTS2.2</td>
<td>Coordinated Nodding of a 2D Lidar for Dense 3D Range Measurements, N/A.</td>
<td>Harchowdhury, Anindya, Indian Institute of Technology Bombay, Kleeman, Lindsay, Monash University, Vachhani, Leena, Indian Institute of Technology Bombay</td>
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<td>15:36-15:39</td>
<td>ThDTS2.3</td>
<td>Fast Convergence for Object Detection by Learning How to Combine Error Functions, pp. 7329-7335.</td>
<td>Schnieders, Benjamin, University of Liverpool, Tuyls, Karl, University of Liverpool</td>
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<td>15:39-15:42</td>
<td>ThDTS2.4</td>
<td>Towards Real-Time Physical Human-Robot Interaction Using Skeleton Information and Hand Gestures, pp. 7336-7341.</td>
<td>Mazhar, Osama, LIRMM - Universite De Montpellier CNRS, Ramdani, Sofiane, University Montpellier - UFR STAPS, Navarro, Benjamin, University of Orleans, Passama, Robin, LIRMM (CNRS, Université Montpellier 2), Cherubini, Andrea, LIRMM - Universite De Montpellier CNRS</td>
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<td>ThDTS2.5</td>
<td>LIDAR and Camera Calibration Using Motions Estimated by Sensor Fusion Odometry, pp. 7342-7349.</td>
<td>Ishikawa, Ryoichi, The University of Tokyo, Oishi, Takeshi, The University of Tokyo, Ikeuchi, Katsuhiro, Microsoft</td>
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<td>ThDTS2.6</td>
<td>Edge and Corner Detection for Unorganized 3D Point Clouds with Application to Robotic Welding, pp. 7350-7355.</td>
<td>Ahmed, Syeda Mariam, National University of Singapore, Tan, Yan Zhi, National University of Singapore, Chew, Chee Meng, National University of Singapore, Mamun, Abdullah Al, National University of Singapore, Wong, Fook Seng, Keppel Offshore &amp; Marine Technology Center</td>
</tr>
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<td>15:48-15:51</td>
<td>ThDTS2.7</td>
<td>Automatic Fall Risk Assessment for Challenged Users Obtained from a Rollator Equipped with Force Sensors and a RGB-D Camera, pp. 7356-7361.</td>
<td>Ballesteros, Joaquin, University of Malaga, Peula Palacios, Jose Manuel, University of Malaga, Antonio B., Martinez, Technical University of Catalonia, Urdiales, Cristina, Universidad De Madrid</td>
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### ThDTS3
**Navigation Planning** (Regular session)

**Room 1.L2**

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<td>ThDTS3.1</td>
<td>Fast Trajectory Planning for Automated Vehicles Using Gradient-Based Nonlinear Model Predictive Control, pp. 7369-7374.</td>
<td>Gritschneder, Franz, Ulm University, Graichen, Knut, Ulm University, Dietmayer, Klaus, University of Ulm</td>
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<td>ThDTS3.3</td>
<td>Guaranteed Coverage with a Blind Unreliable Robot, pp. 7383-7390.</td>
<td>Lewis, Jeremy, University of South Carolina, Feshbach, Daniel A, Haverford College, O’Kane, Jason, University of South Carolina</td>
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<td>15:42-15:45</td>
<td>ThDTS3.4</td>
<td>Single Leg Dynamic Motion Planning with Mixed-Integer Convex Optimization, pp. 7391-7396.</td>
<td>Ding, Yanran, University of Illinois at Urbana-Champaign, Li, Chuanzheng, University of Illinois, Urbana-Champaign, Park, Hae-Won, University of Illinois at Urbana-Champaign</td>
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15:48-15:51       ThDTS3.7
Littlefield, Zakary
Rutgers University
Bekris, Kostas E.
Rutgers, the State University of New Jersey

15:51-15:54       ThDTS3.8
PORCA: Modeling and Planning for Autonomous Driving among Many Pedestrians, N.A.
Luo, Yuanfu
School of Computing, National University of Singapore
Cai, Panpan
Nanyang Technological University
Bera, Aniket
University of North Carolina at Chapel Hill
Hsu, David
National University of Singapore
Lee, Wee Sun
National University of Singapore
Manaucha, Dinesh
University of North Carolina at Chapel Hill

ThDTS4 Room 2.L2
Control IV (Regular session)
Chair: Martinet, Philippe
INRIA
Co-Chair: Hernández García, Daniel
University of Plymouth

15:30-15:33       ThDTS4.1
High-Speed and Intelligent Pre-Grasp Motion by a Robotic Hand Equipped with Hierarchical Proximity Sensors, pp. 7424-7431.
Hirai, Yuji
Kanazawa University
Suzuki, Yosuke
Kanazawa University
Tsujii, Tokuo
Kanazawa University
Watanabe, Tetsuyou
Kanazawa University

15:33-15:36       ThDTS4.2
Singularity Resolution in Equality and Inequality Constrained Hierarchical Task-Space Control by Adaptive Non-Linear Least-Squares, N.A.
Pfeiffer, Kai
CNRS-AIST JRL (Joint Robotics Laboratory) UMI3218/RL, Tsukuba, Ja
Escande, Adrien
CNRS-AIST JRL UMI3218/rl
Kheddar, Abderrahmane
CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT

15:36-15:39       ThDTS4.3
Dynamic Locomotion in the MIT Cheetah 3 through Convex Model-Predictive Control, pp. 7440-7447.
Di Carlo, Jared
Massachusetts Institute of Technology
Wensing, Patrick M.
University of Notre Dame
Katz, Benjamin
Massachusetts Institute of Technology
Bledt, Gerardo
Massachusetts Institute of Technology (MIT)
Kim, Sangbae
Massachusetts Institute of Technology

ThDTS5 Room 2.R3
Soft Robotics IV (Regular session)
Chair: Khatib, Oussama
Stanford University
Co-Chair: Park, Yong-Lae
Seoul National University

15:30-15:33       ThDTS5.1
Kim, DongWook
Seoul National University
Park, Yong-Lae
Seoul National University

15:35-15:38       ThDTS5.2
A Biomimetic Soft Robot for Inspecting Pipeline with Significant Diameter Variation, pp. 7486-7491.
Zhang, Xue
CUHK
Pan, Tianle Flippy
The Chinese University of Hong Kong
Heung, Ho Lam
The Chinese University of Hong Kong
Chiu, WAI, YAN Philip
Chinese University of Hong Kong
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<td>Continuum Manipulator with Redundant Backbones and Constrained Bending Curvature for Continuously Variable Stiffness, pp. 7492-7499.</td>
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<td>15:39-15:42</td>
<td>ThDTS6.3</td>
<td>Platform-Independent Benchmarks for Task and Motion Planning, N/A.</td>
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<td>15:30:15:33</td>
<td>ThDTS7.1</td>
<td>Adaptive Path Following for Snake Robot on Ground with Unknown and Varied Friction Coefficients, pp. 7583-7588.</td>
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Khangani, Javad
University of Tehran

**ThDTS7.3**

Yalikun, Yaxier
Graduate School of Engineering, Osaka University
Kamamichi, Norihiro
Tokyo Denki University
Noguchi, Yuji
Tokyo Denki University
Tanaka, Yo
Riken

15:36-15:39

Heath, Scott
University of Queensland
Ramirez-Brinez, Carlos
The University of Queensland
Andres
Arnold, Joshua
The University of Queensland
Olsson, Ola
University of Queensland
Taufatofua, Jonathon
The University of Queensland
Pounds, Pauline
The University of Queensland
Wiles, Janet
University of Queensland
Leonardis, Eric
University of California, San Diego - Cognitive Science Department
Gygi, Emmanuel
University of California, San Diego - Cognitive Science Department
Leija, Estelita
University of California, San Diego - Cognitive Science Department
Quinn, Laleh
University of California, San Diego - Cognitive Science Department
Chiba, Andrea
University of California, San Diego

15:39-15:42

Davies, Evan
Georgia Institute of Technology
Garlow, Adam
Georgia Institute of Technology
Farzan, Siavash
Georgia Institute of Technology
Rogers, Jonathan
Georgia Institute of Technology
Hu, Ai-Ping
Georgia Tech Research Institute

15:42-15:45

**Longitudinal Rollover Strategy As Effective Intervention to Reduce Wrist Injuries During Forward Fall, N.A.**
Abdalshoh, Saeed
Nagoya University
Rajaei, Nader
Graduate School of Engineering, Nagoya University
Akiyama, Yasuhiro
Nagoya University
Yamada, Yoji
Nagoya University
Okamoto, Shogo
Nagoya University

15:45-15:48

Cizek, Petr
Czech Technical University in Prague, Faculty of Electrical Engineering
Kubik, Jiří
Czech Technical University in Prague, FEE

15:48-15:51

**ThDTS7.4**

**Service Robots I (Regular session)**
Chair: Kosuge, Kazuhiro
Tohoku University
Co-Chair: Bellotto, Nicola
University of Lincoln

15:30-15:33

**Multisensor Online Transfer Learning for 3D LiDAR-Based Human Detection with a Mobile Robot**, pp. 7635-7640.
Yan, Zhi
University of Technology of Belfort-Montbéliard (UTBM)
Sun, Li
University of Birmingham
Duckett, Tom
University of Lincoln
Bellotto, Nicola
University of Lincoln

15:33-15:36

Furuta, Yuki
The University of Tokyo
Okada, Kei
The University of Tokyo
Inaba, Masayuki
The University of Tokyo
Kakiuchi, Yohei
The University of Tokyo

15:36-15:39

Lee, Chan
DGIST (Daegu Gyeongbuk Institute of Science and Technology)
Oh, Sehoon
DGIST (Daegu Gyeongbuk Institute of Science and Technology)

15:39-15:42

**ThDTS8.4**

Kawasaki, Yosuke
KEIO University
Yorozu, Ayanori
Keio University
Takahashi, Masaki
Keio University

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Nagahama, Kotaro
Shinshu University
Takeshita, Keisuke
Toyota Motor Corporation
Yaguchi, Hiroaki
The University of Tokyo
Yamazaki, Kimitoshi
Shinshu University
Yamamoto, Takashi
Toyota Motor Corporation
Inaba, Masayuki
The University of Tokyo

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**Co-Chair: Bellotto, Nicola**
University of Birmingham

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**ThDTS8.8**

Lepora, Nathan
University of Bristol
Pearson, Martin
Bristol Robotics Laboratory
Cramphorn, Luke
Bristol University

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Nagahama, Kotaro
Shinshu University
Takeshita, Keisuke
Toyota Motor Corporation
Yaguchi, Hiroaki
The University of Tokyo
Yamazaki, Kimitoshi
Shinshu University
Yamamoto, Takashi
Toyota Motor Corporation
Inaba, Masayuki
The University of Tokyo
Hensby, Kristyn  
The University of Queensland

Durantin, Gautier  
The University of Queensland

Kong, Wilson  
The University of Queensland

Wiles, Janet  
The University of Queensland

Pounds, Pauline  
The University of Queensland

Reynolds, Dylan  
West Virginia University

Kilig, Cagri  
West Virginia University

Hikes, Jacob  
West Virginia University

Mills, Sarah  
West Virginia University

Castle, Conner  
West Virginia University

Buzzo, Benjamin  
West Virginia University

Waterland, Nicole  
West Virginia University, Division of Plant and Soil Sciences

Gross, Jason  
West Virginia University

Park, Yong-Lak  
West Virginia University

Li, Xin  
West Virginia University

Gu, Yu  
West Virginia University

Development of the Research Platform of a Domestic Mobile Manipulator Utilized for International Competition and Field Test, pp. 7675-7682.

Yamamoto, Takashi  
Toyota Motor Corporation

Terada, Koji  
TOYOTA Motor Corporation

Ochiai, Akiyoshi  
Toyota Research Institute

Saito, Fuminori  
Toyota Motor Corporation

Asahara, Yoshiaki  
Toyota Motor Corporation

Murase, Kazuto  
The University of Tokyo

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Ohi, Nicholas  
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Lassak, Kyle  
West Virginia University

Watson, Ryan  
West Virginia University

Strader, Jared  
West Virginia University

Du, Yixin  
West Virginia University

Yang, Chizhao  
West Virginia University

Hedrick, Gabrielle  
West Virginia University

Nguyen, Jennifer  
West Virginia University

Harper, Scott  
West Virginia University

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ThDTS9.4

Design of an Autonomous Precision Pollination Robot, pp. 7711-7718.

Ohi, Nicholas  
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Du, Yixin  
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West Virginia University

Yang, Chizhao  
West Virginia University

Hedrick, Gabrielle  
West Virginia University

Nguyen, Jennifer  
West Virginia University

Harper, Scott  
West Virginia University
### ThETS1

**Aerial Systems VIII (Regular session)**  
Co-Chair: Schoellig, Angela P.  
University of Toronto

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<td>Talke, Kurt, de Oliveira, Mauricio, Bewley, Thomas</td>
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<td>Muratore, Luca, Lennox, Barry, Tsagarakis, Nikos</td>
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<td>15:40-15:45</td>
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University of Nevada, Reno  
University of Nevada, Reno  
Beijing Institute of Technology  
University of Nevada, Reno  
University of Nevada, Reno
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Perez Maldonado, Francisco, García Nunez, Francisco, Fernández, García, Emilio  
University De Malaga  
University De Malaga  
University of Malaga
| 17:18-17:21     | Nonlinear Adaptive Control of Quadrotor Multi-Flipping Maneuvers in the Presence of Time-Varying Torque Latency | Chen, Ying, Perez-aranjibia, Nestor O  
University of Southern California  
University of Southern California
| 17:21-17:24     | High-Speed Flight of Quadrotor Despite Loss of Single Rotor, N/A       | Sun, Sihao, Sijbers, Leon Marinus  
Student  
Delft University of Technology  
TU Delft

### ThETS2

**Sensorial Perception VIII (Regular session)**  
Chair: Piater, Justus  
University of Innsbruck

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University of Pennsylvania  
University of Pennsylvania  
University of Pennsylvania  
New York University
| 17:07-17:10     | Quadtree-Accelerated Real-Time Monocular Dense Mapping                 | Wang, Kaixuan, Ding, Wenchao, Shen, Shaojie  
Hong Kong University of Science and Technology  
Hong Kong University of Science and Technology  
Hong Kong University of Science and Technology
| 17:17-17:24     | High-Speed Flight of Quadrotor Despite Loss of Single Rotor, N/A       | Sun, Sihao, Sijbers, Leon Marinus  
Student  
Delft University of Technology  
TU Delft

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NDVI Point Cloud Generator Tool Using Low-Cost RGB-D Sensors, pp. 7860-7865.
Calero, Scanlan, David CTTTC
Fernández, Murcia, Enric CTTTC
Parés, Calaf, Maria Eulàlia CTTTC
Angelats, Company, Eduard CTTTC

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Hosono, Takashi NTT Media Intelligence Laboratories, NTT Corporation
Tarashima, Shuhei NTT Media Intelligence Laboratories
Shimamura, Jun NTT Media Intelligence Laboratories
Kinebuchi, Tetsuya NTT Corporation

ThETS2.3
Gräter, Johannes Karlsruher Institut für Technologie (KIT)
Wilczynski, Alexander Karlsruhe Institute of Technology
Lauer, Martin Karlsruhe Institute of Technology

ThETS2.4
Learning to Segment Generic Handheld Objects Using Class-Agnostic Deep Comparison and Segmentation Network, N/A.
Chaudhary, Krishneel Chand The University of Tokyo
Wada, Kentaro The University of Tokyo
Chen, Xiangyu The University of Tokyo
Kimura, Kohei The University of Tokyo
Okada, Kei The University of Tokyo
Inaba, Masayuki The University of Tokyo

ThETS2.5
Exercising Affordances of Objects: A Part-Based Approach, N/A.
Rezapour Lakani, Safoua University of Innsbruck
Rodriguez-Sanchez, Antonio University of Innsbruck
Piater, Justus University of Innsbruck

ThETS2.6
Detect Globally, Label Locally: Learning Accurate 6-DOF Object Pose Estimation by Joint Segmentation and Coordinate Regression, N/A.
Nigam, Aparv University College London
Peñate-Sánchez, Adrián Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Agapito, Lourdes University College London

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Chen, Yi-Chun National Tsing Hua University
Tung, Chia-Yu National Tsing Hua University
Sun, Cheng National Tsing Hua University
Cheng, Ching-Ju National Tsing Hua University
Chen, Liwei National Chao Tung University
Varadarajan, Sreivasa Intel Corporation
Sun, Min National Tsing Hua University

ThETS2.8
PCAOT: A Manhattan Point Cloud Registration Method towards

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Chair: Hasegawa, Yasuhisa Nagoya University

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Misura, Marcell University of Bonn
Lee, Daniel Cornell Tech
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Hoenig, Wolfgang University of Southern California
Ayanian, Nora University of Southern California

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Stankiewicz, Paul Johns Hopkins University
Jenkins, Stephen Johns Hopkins University
Mullins, Galen University of Maryland
Wolfe, Kevin Johns Hopkins University
Johannes, Matthew Johns Hopkins University
Moore, Joseph Johns Hopkins University

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Salvado, João Örebro University
Mansouri, Masoumeh Örebro University
Pecora, Federico Örebro University
Krug, Robert KTH Royal Institute of Technology

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Vandermeulen, Isaac University of Sheffield
Gross, Roderich The University of Sheffield
Kolling, Andreas iRobot Corporation

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Multi-Agent Planning for Coordinated Robotic Weed Killing, pp. 7955-7960.
McAllister, Wyatt University of Illinois at Urbana-Champaign
Osipychev, Denis University of Illinois at Urbana-Champaign
Chowdhary, Girish University of Illinois at Urbana-Champaign
Davis, Adam USDA-ARS in Urbana, IL

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Co-Chair: Gimenez, Antonio
University of Almeria

17:00-17:03


Yao, Meibao
Harbin Institute of Technology

Cui, Hutao
Harbin Institute of Technology

Xiao, Xueming
Changchun University of Science and Technology

Belke, Christoph H.
École Polytechnique Fédérale De Lausanne

Paik, Jamie
École Polytechnique Fédérale De Lausanne

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Okura, Yuki
Kyoto University

Fujimoto, Kenji
Kyoto University

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**Trajectory Optimization with Implicit Hard Contacts, N/A.**

Carus, Jan
ETH Zurich

Ranft, Rene
Intel

Koltun, Vladlen
Intel Labs

Hutter, Marco
ETH Zurich

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**Riding and Speed Governing for Parallel Two-Wheeled Scooter Based on Sequential Online Learning Control by Humanoid Robot**, pp. 7997-8004.

Kimura, Kohei
The University of Tokyo

Nozawa, Shunichi
The University of Tokyo

Mizohana, Hiroto
University of Tokyo

Okada, Kei
The University of Tokyo

Inaba, Masayuki
The University of Tokyo

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**Soft-Actuator-Based Robotic Joint for Safe and Forceful Interaction with Controllable Impact Response, N/A.**

Chen, Xiaojiao
The University of Hong Kong

Yi, Juan
The University of Hong Kong

Li, Jing
The University of Hong Kong

Zhou, Jianhu
The University of Hong Kong

Wang, Zheng
The University of Hong Kong

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Zhang, Guoteng
Ritsumeikan University

Ma, Shugen
Ritsumeikan University

Li, Yibin
Shandong University

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Gafford, Joshua
Harvard University

Aihara, Hiroyuki
Brigham and Women’s Hospital

Thompson, Christopher
Brigham and Women’s Hospital

Walsh, Conor James
Harvard University

Wood, Robert
Harvard University

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Balaban, David
University of Massachusetts Amherst

Fischer, Alexander
University of Massachusetts Amherst

Biswas, Joydeep
University of Massachusetts Amherst

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Co-Chair: Mochiyama, Hiromi
University of Tsukuba

17:00-17:03

**A Variable Degree-Of-Freedom and Self-Sensing Soft Bending Actuator Based on Conductive Liquid Metal and Thermoplastic Polymer Composites**, pp. 8033-8038.

Hao, Yufei
Beihang University

Liu, Zemin
Beihang University

Xie, ZheXin
Beijing University of Aeronautics and Astronautics

Fang, Xi
Beihang University

Wang, Tianmiao
Beijing University of Aeronautics and Astronautics

Wen, Li
Beihang University

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Yang, Hee Doo
Virginia Tech

Asbeck, Alan
Virginia Tech

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**An Origami-Inspired Reconfigurable Suction Gripper for Picking Objects with Variable Shape and Size, N/A.**

Zhakypov, Zhenishbek
École Polytechnique Fédérale De Lausanne (EPFL)

Heremans, Florian
Vrije Universiteit Brussel

Billard, Aude
EPFL

Paik, Jamie
École Polytechnique Fédérale De Lausanne

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**Braiding Thin McKibben Muscles to Enhance Their Contracting Abilities, N/A.**

Koizumi, Shoichiro
Tokyo Institute of Technology

Kurumaya, Shunichi
Tokyo Institute of Technology

Nabae, Hiroyuki
Tokyo Institute of Technology

Endo, Gen
Tokyo Institute of Technology

Suzumori, Koichi
Tokyo Institute of Technology

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Social Cohesion in Autonomous Driving
pp. 8118-8125.

Automatic Parameter Tuning of Motion Planning Algorithms,
pp. 8103-8109.

Perception-Driven Sparse Graphs for Optimal Motion Planning,
pp. 8110-8117.

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Co-Chair: Cañas, José M.
Universidad Rey Juan Carlos

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Application to Navigation, pp. 8082-8088.
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University of Parma
Likhachev, Maxim
Carnegie Mellon University

Computing a Collision-Free Path Using the Monogenic Scale
Space, pp. 8097-8102.
Holmquist, Karl
Linköping University
Senel, Deniz
Bogazici University
Felsberg, Michael
Linköping University

Automatic Parameter Tuning of Motion Planning Algorithms,
pp. 8103-8109.
Cano, José
The University of Edinburgh
Yang, Yiming
University of Edinburgh
Bodin, Bruno
The University of Edinburgh
Nagarajan, Vijay
University of Edinburgh
O’Boyle, Michael F P
The University of Edinburgh

Perception-Driven Sparse Graphs for Optimal Motion Planning,
pp. 8110-8117.
Sayre-McCord, Thomas
MIT
Karaman, Sertac
Massachusetts Institute of Technology

Social Cohesion in Autonomous Driving, pp. 8118-8125.
Landolfi, Nicholas Charles
University of California, Berkeley
Dragan, Anca
University of California Berkeley

FOCS: Planning by Fusion of Optimal Control & Search and Its
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Carnegie Mellon University

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Bogazici University
Felsberg, Michael
Linköping University

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Yang, Yiming
University of Edinburgh
Bodin, Bruno
The University of Edinburgh
Nagarajan, Vijay
University of Edinburgh
O’Boyle, Michael F P
The University of Edinburgh

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MIT
Karaman, Sertac
Massachusetts Institute of Technology

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Landolfi, Nicholas Charles
University of California, Berkeley
Dragan, Anca
University of California Berkeley
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Mano, Yuki
Chuo-University

Ishikawa, Ryutaro
Chuo-University

Yamada, Yasuyuki
Chuo University

Nakamura, Taro
Chuo University

RAMCIP – a Service Robot for MCI Patients at Home, pp. 8220-8222.

Peleka, Georgia
CERTH, Thessaloniki Greece

Kargakos, Andreas
CERTH, Thessaloniki Greece

N/A

\textbf{ThETS8} \textit{Room 2.R1}

\textbf{Service Robots II (Regular session)}

Chair: Vincze, Markus Vienna University of Technology

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Iwata, Kensuke
The University of Electro-Communications

Aoki, Tatsuya
The University of Electro-Communications

Horii, Takato
The University of Electro-Communications

Nakamura, Tomoaki
The University of Electro-Communications

Nagai, Takayuki
University of Electro-Communications

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Proxemics and Approach Evaluation by Service Robot Based on User Behavior in Domestic Environment, pp. 8192-8199.

Samarakoon, Bhagya
University of Moratuwa

Hewa Pelendage, Chapa
University of Moratuwa

Siri Hunghe

Muthugala Arachchige, Viraj
University of Moratuwa

Jagathpria Muthugala

Jayasekara, A.G.B.P.
University of Moratuwa

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Repiso, Ely
Institut De Robòtica I Informàtica Industrial, CSIC-UPC

Garrell, Anais
UPC-CSIC

Sanfelu, Alberto
Universitat Politècnica De Catalunya

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Tsumaki, Yuichi
Yamagata University

Suzuki, Yuya
Secom Industries, Ltd

Sasaki, Narumi
Yamagata University

Obara, Eiki
Yamagata University

Kanazawa, Shuta
Yamagata University

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Del Duchetto, Francesco
University of Lincoln

Kucukyilmaz, Ayse
University of Lincoln

Iocchi, Luca
Sapienza University of Roma

Hanheide, Marc
University of Lincoln

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Chair: Ribeiro, Angela CSIC

Co-Chair: Chen, Zetao ETH Zurich

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University of Bonn

Behley, Jens
University of Bonn

Chebrolu, Nived
University of Bonn

Milioto, Andres
University of Bonn

Stachniss, Cyrill
University of Bonn

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University of Oxford

Nobili, Simona
University of Edinburgh

Fallon, Maurice
University of Oxford

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Zermas, Dimitris CSE, UMN
Morellas, Vassilios U. of Minnesota
Mulla, David University of Minnesota
Papanikolopoulos, Nikos University of Minnesota
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Digumarti, Sundara Tejaswi ETH Zurich
Nieto, Juan ETH Zurich
Cadena Lerma, Cesar ETH Zurich
Siegwart, Roland ETH Zurich
Beardsley, Paul Disney Research Zurich
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Duckett, Tom University of Lincoln
Cierniak, Grzegorz University of Lincoln
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Zakaria, Remy Nazir Bård Norwegian University of Life Sciences
Le, Tuan Dung Norwegian University of Life Sciences
From, Pål Johan Norwegian University of Life Sciences
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Potena, Ciro Sapienza University of Rome
Nardi, Daniele Sapienza University of Rome
Grisetti, Giorgio Sapienza University of Rome
Pretto, Alberto Sapienza University of Rome
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Kurtser, Polina Ben Gurion University of the Negev
Edan, Yael Ben-Gurion University of the Negev
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Co-Chair: Cianchetti, Matteo Scuola Superiore Sant'Anna
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Lima, Keila Laboratório De Sistemas E Tecnologia Subaquática - Faculdade De
Marques, Eduardo R. B. Dcc/cup & Cracs/insec-Tec
Pinto, José Faculty of Engineering, Porto University
Sousa, João Universidade Porto - Faculdade Engenharia
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x -SoC: Heterogeneous SoC Architecture for Visual Inertial SLAM Applications, pp. 8302-8307.
Tang, Jie South China University of Technology
Yu, Bo Perceptin
Liu, Shaoshan Perceptin
Zhang, Zhe Perceptin
Fang, Weikang Beijing Institute of Technology
Zhang, Yanjun Beijing Institute of Technology
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Lange, Ralph Robert Bosch GmbH
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Scene Modeling and Augmented Virtuality Interface for Telerobotic Satellite Servicing, N/A.
Vagvolgyi, Balazs Johns Hopkins University
Pryor, Will Johns Hopkins University
Reedy, Ryan University of Central Florida
Niu, Wenlong National Space Science Center, University of Chinese Academy Of
17:15-17:18 ThETS10.6
Sun, Hao National University of Singapore
Meng, Zehui National University of Singapore
Du, Xinxin Singapore-MIT Alliance for Research and Technology (SMART)
17:17-17:20 ThETS10.7
An Optimization-Based Approach to Dual-Arm Motion Planning with Closed Kinematics, pp. 8346-8351.
Völz, Andreas Ulm University
ThFTS1
Motion and Path Planning for Manipulators (Regular session)
Room 1.L5
Chair: Alami, Rachid CNRS
Co-Chair: Prasad, Dilip Nanyang Technological University
18:00-18:03 ThFTS1.1
Sinc-Based Dynamic Movement Primitives for Encoding Point-To-Point Kinematic Behaviors, pp. 8339-8345.
Papageorgiou, Dimitrios Aristotle University of Thessaloniki
Sidirooulos, Antonis Aristotle University of Thessaloniki
Doulgeri, Zoe Aristotle University of Thessaloniki
18:03-18:06 ThFTS1.2
ThFTS2.3
Fusing Joint Measurements and Visual Features for In-Hand Object Pose Estimation, N/A.

Pfanne, Martin DLR German Aerospace Center
Chalon, Maxime German Aerospace Center (DLR)
Stulp, Freek DLR - Deutsches Zentrum für Luft Und Raumfahrt E.V
Albu-Schäffer, Alin DLR - German Aerospace Center

18:09-18:12 ThFTS2.4
Real-World Multi-Object, Multi-Grasp Detection, N/A.

Chu, Fu-Jen University of Michigan
Xu, Ruinian Georgia Institute of Technology
Vela, Patricio Georgia Institute of Technology

18:12-18:15 ThFTS2.5
Extraction of Physically Plausible Support Relations to Predict and Validate Manipulation Action Effects, N/A.

Kartmann, Rainer Karlsruhe Institute of Technology
Paus, Fabian Karlsruhe Institute of Technology (KIT)
Grotz, Markus Karlsruhe Institute of Technology (KIT)
Asfouri, Tamir Karlsruhe Institute of Technology (KIT)

18:15-18:18 ThFTS2.6

Akkaladevi, Sharath Chandra Profactor GmbH
Plisch, Matthias PROFACCTOR
Eitzinger, Christian Profactor GmbH
Pichler, Andreas Profactor Produktionsforschung GmbH
Rinner, Bernhard Klagenfurt University

18:18-18:21 ThFTS2.7
Lane Marking Quality Assessment for Autonomous Driving, pp. 8443-8448.

Li, Binbin Texas A&M University
Song, Dezhen Texas A&M University
Li, Haifeng Civil Aviation University of China
Pike, Adam Texas A&M Transportation Institute
Carlson, Paul Road Infrastructure Inc

18:21-18:24 ThFTS2.8
Real-Time 3D Reconstruction Using a Combination of Point-Based and Volumetric Fusion, pp. 8449-8455.

Xia, Zhengyu Illinois Institute of Technology
Kim, Joohee Illinois Institute of Technology
Park, Young Soo Argonne National Laboratory

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ThFTS2.1
Attitude Estimation from Polarimetric Cameras, pp. 8397-8403.

Rastgoo, Mojdeh Université De Bourgogne Franche-Comté
Demonceaux, Cédric Université Bourgogne Franche-Comté
Seulin, Ralph University of Burgundy, Le2i Laboratory, UMR-CNRS 5158, 71200 L
Morel, Olivier University of Burgundy

18:00-18:03

ThFTS2.2
Variations on a Theme: “It's a Poor Sort of Memory That Only Works Backwards”, pp. 8390-8396.

Balint-Benczedi, Ferenc University of Bremen
Beetz, Michael University of Bremen

18:21-18:24

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ThFTS2.5
Coherent Point Drift Trajectories to Provide a Feasibility Criterion for the Multi Contact Planning Problem, pp. 8367-8373.

Fernbach, Pierre CNRS - Laas
Tonneau, Steve CNRS - Laas
Taix, Michel LAAS-CNRS/Université Paul Sabatier

18:15-18:18

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ThFTS2.6
Object Pose Estimation and Volumetric Fusion, pp. 8449-8455.

Ames, Aaron Caltech

18:18-18:21

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ThFTS2.7
Collision-Free Path Planning of Dual-Manipulator System Based on Energy Conversion, pp. 8360-8366.

Su, Chang Huazhong University of Science & Technology
Wei, Ruixin Huazhong University of Science and Technology
Mingliang, Zhang Bosch (China) Investment Ltd
Rose, Hannes Bosch (China) Investment Ltd
Jianfeng, Xu Huazhong University of Science and Technology

18:09-18:12

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ThFTS2.8
Real-Time 3D Reconstruction Using a Combination of Point-Based and Volumetric Fusion, pp. 8449-8455.

Kim, Joohee Illinois Institute of Technology
Park, Young Soo Argonne National Laboratory

18:03-18:06

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ThFTS2.9
Collision-Free Path Planning of Dual-Manipulator System Based on Energy Conversion, pp. 8360-8366.

Xia, Zhengyu Illinois Institute of Technology
Kim, Joohee Illinois Institute of Technology
Park, Young Soo Argonne National Laboratory

18:00-18:03

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ThFTS2.10
Lane Marking Quality Assessment for Autonomous Driving, pp. 8443-8448.

Li, Binbin Texas A&M University
Song, Dezhen Texas A&M University
Li, Haifeng Civil Aviation University of China
Pike, Adam Texas A&M Transportation Institute
Carlson, Paul Road Infrastructure Inc

18:18-18:21

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ThFTS2.11
Real-Time 3D Reconstruction Using a Combination of Point-Based and Volumetric Fusion, pp. 8449-8455.

Xia, Zhengyu Illinois Institute of Technology
Kim, Joohee Illinois Institute of Technology
Park, Young Soo Argonne National Laboratory

18:03-18:06

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ThFTS2.12
Object Pose Estimation and Volumetric Fusion, pp. 8449-8455.

Ames, Aaron Caltech

18:18-18:21

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ThFTS2.13
Collision-Free Path Planning of Dual-Manipulator System Based on Energy Conversion, pp. 8360-8366.

Xia, Zhengyu Illinois Institute of Technology
Kim, Joohee Illinois Institute of Technology
Park, Young Soo Argonne National Laboratory

18:00-18:03
### ThFTS3  Room 1.L2

#### Motion and Path Planning for UAVs (Regular session)

**Co-Chair: Verdoja, Francesca**

- 18:00-18:03  ThFTS3.1
  - Pre-Computed Alternative Paths to Enable Aggressive Aerial Maneuvers in Cluttered Environments, pp. 8456-8463.
  - Zhang, Ji, Carnegie Mellon University
  - Gupta chadhia, Rushat, Near Earth Autonomy
  - Velvela, Vivek, Carnegie Mellon University
  - Singh, Sanjiv, Carnegie Mellon University

### ThFTS3  Room 1.L2

- 18:03-18:06  ThFTS3.2
  - Levin, Joshua Max, McGill University
  - Paranjape, Aditya Avinash, Imperial College London
  - Nahon, Meyer, McGill University

### ThFTS3  Room 1.L2

- 18:06-18:09  ThFTS3.3
  - First Experimental Results on Motion Planning for Transportation in Aerial Long-Reach Manipulators with Two Arms, pp. 8471-8477.
  - Caballero, Alvaro, University of Seville
  - Suarez, Alejandro, University of Seville
  - Real, Fran, University of Seville
  - Vega, Victor M., University of Seville
  - Béjar, Manuel, University Pablo De Olavide (Seville, Spain)
  - Rodriguez Castaño, Angel, University of Seville
  - Ollero, Anibal, University of Seville

### ThFTS3  Room 1.L2

- 18:09-18:12  ThFTS3.4
  - Oleynikova, Helen, ETH Zürich
  - Taylor, Zachary Jeremy, ETH Zürich
  - Siegwart, Roland, ETH Zürich
  - Nieto, Juan, ETH Zürich

### ThFTS3  Room 1.L2

- 18:12-18:15  ThFTS3.5
  - Motion Planning for a UAV with a Straight or Kinked Tether, pp. 8486-8492.
  - Xiao, Xuesu, Texas A&M University
  - Dufek, Jan, Texas A&M University
  - Suhail, Mohamed, Texas A&M University
  - Murphy, Robin, Texas A&M University

### ThFTS3  Room 1.L2

- 18:15-18:18  ThFTS3.6
  - Persistent Monitoring with Refueling on a Terrain Using a Team of Aerial and Ground Robots, pp. 8493-8498.
  - Maini, Parikshit, Indraprastha Institute of Information Technology, Delhi
  - Yu, Kevin, Virginia Tech
  - Pb, Sujit, Indraprastha Institute of Information Technology Delhi
  - Tokekar, Pratap, Virginia Tech

### ThFTS3  Room 1.L2

- 18:18-18:21  ThFTS3.7
  - A Mobility Model Based on Improved Artificial Potential Fields for Swarms of UAVs, pp. 8499-8504.
  - Falomir, Ema, LaBRI Bordeaux Computer Science Research Laboratory, University of Bordeaux
  - Chaumette, Serge, LaBRI, Bordeaux Computer Science Research Laboratory, University of Bordeaux

### ThFTS4  Room 2.L2

#### Control VI (Regular session)

**Chair: Giffthaler, Markus**

**Co-Chair: Robuffo Giordano, Centre National De La Recherche Scientifique (CNRS)**

- 18:00-18:03  ThFTS4.1
  - Shahriari, Mohammadali, University of Guelph
  - Svogor, Ivan, Montreal Polytechnic
  - St-Onge, David, Ecole Polytechnique De Montreal
  - Beltrame, Giovanni, Ecole Polytechnique De Montreal

- 18:03-18:06  ThFTS4.2
  - Control of Musculoskeletal Systems Using Learned Dynamics Models, N/A.
  - Buechler, Dieter, Max Planck Institute for Intelligent Systems Tübingen
  - Calandra, Roberto, University of California Berkeley
  - Schölkopf, Bernhard, Max Planck Institute for Intelligent Systems
  - Peters, Jan, Technische Universität Darmstadt

- 18:06-18:09  ThFTS4.3
  - A Topological Approach to Workspace and Motion Planning for a Cable-Controlled Robot in Cluttered Environments, N/A.
  - Wang, Xiaolong, Lehigh University
  - Bhattacharya, Subhrajit, Lehigh University

- 18:09-18:12  ThFTS4.4
  - An Improved Formulation for Model Predictive Control of Legged Robots for Gait Planning and Feedback Control, pp. 8535-8542.
  - Yuan, Kai, University of Edinburgh
  - Li, Zhibin, University of Edinburgh

- 18:12-18:15  ThFTS4.5
  - Cable-Driven Actuation for Highly Dynamic Robotic Systems, pp. 8543-8550.
  - Hwangbo, Jemin, Swiss Federal Institute of Technology, Zurich
  - Tsounis, Vassilios, Swiss Federal Institute of Technology in Zurich
  - Kolvenbach, Hendrik, ETHZ
  - Hutter, Marco, ETH Zurich

- 18:15-18:18  ThFTS4.6
  - Disturbance Observer Based Hovering Control of Quadrotor Tail-Sitter VTOL UAVs Using H-Infinity Synthesis, N/A.
  - Lyu, Ximin, Hong Kong University of Science and Technology
  - Zhou, Jinni, Hong Kong University of Science

Proactive Robot Assistants for Freeform Collaborative Tasks through Multimodal Recognition of Generic Subtasks, pp. 8567-8573.

Virtual Borders: Accurate Definition of a Mobile Robot’s Workspace Using Augmented Reality, pp. 8574-8580.


Walking Assistance and Resistance of Walking Motion by Trunk and Pelvis Motion Assist, pp. 8597-8602.

Optimizing Contextual Ergonomics Models in Human-Robot Interaction, pp. 8603-8608.

Drivers’ Manoeuvre Prediction for Safe HRI, pp. 8609-8614.

Incorporating Kinematic Properties into Fused Deposition Toolpath Optimization, pp. 8622-8627.

A Natural Adaptive Control Law for Robot Manipulators, pp. 8628-8635.

Reactive Magnetic-Field-Inspired Navigation Method for Robots in Unknown Convex 3D Environments, N/A.

Map-Based Deep Imitation Learning for Obstacle Avoidance, pp. 8644-8649.

ATR

K. Narayanan, Vishnu
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<td>Kim, Wansoo, Lorenzini, Marta, Kapicioglu, Kagan, Ajoudani, Arash</td>
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<td>Continuous State-Action-Observation POMDPs for Trajectory Planning</td>
<td>Morere, Philippe, Marchant, Roman, Ramos, Fabio</td>
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<td>FrA7.1</td>
<td>Vision-Based Drones: What's Next?*</td>
<td>Loianno, Giuseppe</td>
<td>New York University</td>
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<td>Scaramuzza, Davide</td>
<td>University of Zurich</td>
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<td>Kumar, Vijay</td>
<td>University of Pennsylvania</td>
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<td>FrA8</td>
<td>4.R1</td>
<td>WSFAM20 - Human-Robot Cooperation and Collaboration in Manipulation: Advancements and Challenges, Part I (Workshop)</td>
<td>Ortenzi, Valerio</td>
<td>Queensland University of Technology / ACRV</td>
</tr>
<tr>
<td>09:00-11:00</td>
<td>FrA8.1</td>
<td>Human-Robot Cooperation and Collaboration in Manipulation: Advancements and Challenges*</td>
<td>Ortenzi, Valerio</td>
<td>Queensland University of Technology / ACRV</td>
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<td>Controzz, Marco</td>
<td>Scuola Superiore Sant'Anna</td>
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<td>Marturi, Naresh</td>
<td>University of Birmingham</td>
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<td>Bekiroglu, Yasemin</td>
<td>Vicarious AI</td>
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<td>Corke, Peter</td>
<td>Queensland University of Technology</td>
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<td>Cherubini, Andrea</td>
<td>LISSIM - Universite de Montpellier CNRS</td>
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<tr>
<td>FrA9</td>
<td>2.R1</td>
<td>WSFFD14 - Development of Agile Robots, Part I (Workshop)</td>
<td>Kashiri, Navvab</td>
<td>Istituto Italiano di Tecnologia</td>
</tr>
<tr>
<td>09:00-11:00</td>
<td>FrA9.1</td>
<td>Development of Agile Robots*</td>
<td>Kashiri, Navvab</td>
<td>Istituto Italiano di Tecnologia</td>
</tr>
</tbody>
</table>
WSFAM19 - New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications, Part I (Workshop)

Chair: Sanz, Pedro J Jaume I
09:00-11:00 FrA10.1

New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications*.

Sanz, Pedro J Jaume I
Khatib, Oussama Stanford University
Choi, Hyun-Taek Korea Institute of Oceans Science and Technology
Kawamura, Sadao Ritsumekan University
Ridao, Pere Universitat de Girona

WSFAM25 - Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments, Part I (Workshop)

Chair: Ngo, Trung-Dung University of Prince Edward Island
09:00-11:00 FrA11.1

Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments*.

Ngo, Trung-Dung University of Prince Edward Island
Alami, Rachid CNRS
Nejat, Goldie University of Toronto
Ou, Yongsheng Chinese Academy of Sciences
Kanda, Takayuki Kyoto University
Truong, Xuan-Tung Le Quy Don Technical University

WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part I (Workshop)

Chair: Ishiguro, Hiroshi Osaka University
09:00-11:00 FrA12.1

Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction*.

Ishiguro, Hiroshi Osaka University
Kawahara, Tatsuya Kyoto Univ.
Nakamura, Yutaka Osaka university

WSFDD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part I (Workshop)

Chair: Alonso-Mora, Javier Delft University of Technology
09:00-11:00 FrA13.1

Second Workshop on Multi-Robot Perception-Driven Control and Planning*.

Alonso-Mora, Javier Delft University of Technology
Montijano, Eduardo Universidad de Zaragoza
Rus, Daniela MIT
Schwager, Mac Stanford University

WSFFD05 - Robots for Assisted Living, Part I (Workshop)

Chair: Calinon, Sylvain Idiap Research Institute
09:00-11:00 FrA18.1

Hand-Shaking Advanced Control in Marine Robotics Applications*.

Zereik, Enrica CNR - National Research Council
Bonsignorio, Fabio Paolo Heron Robots srl and The Biorobotics Institute Scuola Superiore S. Anna

WSFAM21 - Hand-Shaking Advanced Control in Marine Robotics Applications, Part I (Workshop)

Chair: Zereik, Enrica CNR - National Research Council
09:00-11:00 FrA17.1

Hand-Shaking Advanced Control in Marine Robotics Applications*.

Zereik, Enrica CNR - National Research Council
Bonsignorio, Fabio Paolo Heron Robots srl and The Biorobotics Institute Scuola Superiore S. Anna
FrA18.1 Robots for Assisted Living*.
Calinon, Sylvain Idiap Research Institute
Dogramadzi, Sanja University of the West of England
Torras, Carme CSIC - UPC
Shibata, Tomohiro Kyushu institute of technology
Demiris, Yiannis Imperial College London

FrA19 WSFFD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part I (Workshop)
Chair: Tadokoro, Satoshi Tohoku University

FrA20 WSFAM17 - Workshop on Crossmodal Learning for Intelligent Robotics, Part I (Workshop)
Chair: Parisi, German Ignacio University of Hamburg

FrA21 TUFAM03 - Robot Audition: Open Source Software HARK, Part I (Tutorial)
Chair: Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd

FrA22 TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research, Part I (Tutorial)
Chair: Kazanzides, Peter Johns Hopkins University

FrA23 Room 4.1.1 WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots, Part I (Workshop)
Chair: Aksoy, Eren Erdal Halmstad University

FrB1 WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans, Part II (Workshop)
Chair: Villani, Luigi Univ. Napoli Federico II

Chair: Pardos-Gotor, Jose M. Universidad Carlos III De Madrid

FrB3 WSFFD12 - Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots, Part II (Workshop)
Chair: Katzschmann, Robert Kevin Massachusetts Institute of Technology

Medical Robotics Research*.
Kazanzides, Peter Johns Hopkins University
Hannaford, Blake University of Washington
Fischer, Gregory Scott Worcester Polytechnic Institute, WPI

WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots*.
Aksoy, Eren Erdal Halmstad University
Yang, Yezhou Arizona State University
Dantam, Neil Colorado School of Mines
Cheng, Gordon Technical University of Munich

WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans*.
Villani, Luigi Univ. Napoli Federico II
Magnusson, Martin Örebro University
Prassler, Erwin Bonn-Rhein-Sieg Univ. of Applied Sciences
Puljiz, David Karlsruhe Institute of Technology
De la Riva, Jesús Julián ITAINNOVA / Instituto Alfonso Tecnológico de Aragón, Spain

TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research*.
Katzschmann, Robert Kevin Massachusetts Institute of Technology
Della Santina, Cosimo Centro E. Piaggio
Rus, Daniela MIT
### WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part II (Workshop)

**Chair:** Wurdemann, Helge Arne  
*University College London*

**Workshop on Shape Changing Robotic Structures and Interfaces**.

- Wurdemann, Helge Arne  
  *University College London*
- Roudaut, Anne  
  *University of Bristol*
- Dogramadzi, Sanja  
  *University of the West of England*
- Paik, Jamie  
  *Ecole Polytechnique Federale de Lausanne*
- Girouard, Audrey  
  *Carleton University*
- Althoefer, Kaspar  
  *Queen Mary University of London*
- Ho, Van  
  *Japan Advanced Institute of Science and Technology*

### WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part II (Workshop)

**Chair:** Sun, Yu  
*University of South Florida*

**Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions**.

- Sun, Yu  
  *University of South Florida*
- Moon, Hyungpil  
  *Sungkyunkwan University*
- Falco, Joe  
  *NIST*
- Calli, Berk  
  *Worcester Institute of Technology*

### WSFFD04 - Machine Learning in Robot Motion Planning, Part II (Workshop)

**Chair:** Choudhury, Sanjiban  
*University of Washington*

**Machine Learning in Robot Motion Planning**.

- Choudhury, Sanjiban  
  *University of Washington*
- Dey, Debadeepa  
  *Microsoft*
- Srinivasa, Siddhartha  
  *University of Washington*
- Toussaint, Marc  
  *University of Stuttgart*
- Boots, Byron  
  *Georgia Institute of Technology*

### WSFFD02 - Vision-Based Drones: What's Next? Part II (Workshop)

**Chair:** Loianno, Giuseppe  
*New York University*

**Vision-Based Drones: What's Next?**.

- Loianno, Giuseppe  
  *New York University*
- Scaramuzza, Davide  
  *University of Zurich*
- Kumar, Vijay  
  *University of Pennsylvania*

### WSFFD14 - Development of Agile Robots, Part II (Workshop)

**Chair:** Kashiri, Navvab  
*Istituto Italiano Di Tecnologia*

**Development of Agile Robots**.

- Kashiri, Navvab  
  *Istituto Italiano Di Tecnologia*
- Malzahn, Jörn  
  *Istituto Italiano Di Tecnologia*
- Tsagarakis, Nikos  
  *Istituto Italiano Di Tecnologia*

### WSFAM19 - New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications, Part II (Workshop)

**Chair:** Sanz, Pedro J  
*Jaume I*

**New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications**.

- Sanz, Pedro J  
  *Jaume I*
- Khatib, Oussama  
  *Stanford University*
- Choi, Hyun-Taek  
  *Korea Institute of Oceans Science and Technology*
- Kawamura, Sadao  
  *Ritsumeikan University*
- Ridao, Pere  
  *Universitat de Girona*

### WSFAM25 - Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments, Part II (Workshop)

**Chair:** Ngo, Trung-Dung  
*University of Prince Edward Island*

**Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments**.

- Ngo, Trung-Dung  
  *University of Prince Edward Island*
- Alami, Rachid  
  *CNRS*
- Nejat, Goldie  
  *University of Toronto*
- Ou, Yongsheng  
  *Chinese Academy of Sciences*
- Kanda, Takayuki  
  *Kyoto University*
- Truong, Xuan-Tung  
  *Le Quy Don Technical University*

### WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part II (Workshop)

**Chair:** Ishiguro, Hiroshi  
*Osaka University*

**Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction**.

- Ishiguro, Hiroshi  
  *Osaka University*
FrB13 Room 2.5 KUKA
WSFDD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part II (Workshop)
Chair: Alonso-Mora, Javier Delft University of Technology
11:30-13:30 FrB13.1
Second Workshop on Multi-Robot Perception-Driven Control and Planning*.
Alonso-Mora, Javier Delft University of Technology
Montijano, Eduardo Universidad de Zaragoza
Rus, Daniela MIT
Schwager, Mac Stanford University

FrB14 Room 1.1.R
TUFFD01 - Aerial Robotic Manipulation, Part II (Tutorial)
Chair: Heredia, Guillermo University of Seville
11:30-13:30 FrB14.1
Aerial Robotic Manipulation*.
Heredia, Guillermo University of Seville

FrB15 Room 2.1.R
WSFSD11 - Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control, Part II (Workshop)
Chair: Rabenorosoa, Kandy Univ. Bourgogne Franche-Comté, CNRS
11:30-13:30 FrB15.1
Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control*.
Rabenorosoa, Kandy Univ. Bourgogne Franche-Comté, CNRS
Burgner-Kahrs, Jessica Leibniz Universität Hannover
Cianchetti, Matteo Scuola Superiore Sant'Anna
Rucker, Caleb University of Tennessee

FrB16 Room 1.5 R
WSFDD06 - Collaboratively Working towards Ontology-Based Standards for Robotics and Automation, Part II (Workshop)
Chair: Bermejo, Julita Universidad Politecnica de Madrid
11:30-13:30 FrB16.1
Collaboratively Working towards Ontology-Based Standards for Robotics and Automation*.
Bermejo, Julita Universidad Politecnica de Madrid
Chibani, Abdelghani Lissi Lab Paris EST University
Goncalves, Paulo Instituto Politecnico de Castelo Branco
Li, Howard University of New Brunswick
Jordan, Sara Rene Virginia Tech
Olivares, Alberto Universidad de Castilla-La Mancha
Olszewska, Joanna Isabelle University of Gloucestershire, United Kingdom
Presles, Edson UFRGS
Rama Fiorini, Sandro Université Paris-Est Créteil

Sanz, Ricardo Universidad Politecnica de Madrid

FrB17 Room 4.1.R
WSFAM21 - Hand-Shaking Advanced Control in Marine Robotics Applications, Part II (Workshop)
Chair: Zereik, Enrica CNR - National Research Council
11:30-13:30 FrB17.1
Hand-Shaking Advanced Control in Marine Robotics Applications*.
Zereik, Enrica CNR - National Research Council
Bonsignorio, Fabio Paolo Heron Robots srl and The Biorobotics Institute Scuola Superiore S. Anna

FrB18 Room 2.1.L
WSFDD05 - Robots for Assisted Living, Part II (Workshop)
Chair: Calinon, Sylvain Idiap Research Institute
11:30-13:30 FrB18.1
Robots for Assisted Living*.
Calinon, Sylvain Idiap Research Institute
Dogramadzi, Sanja University of the West of England
Torras, Carme CSIC - UPC
Shibata, Tomohiro Kyushu institute of technology
Demiris, Yiannis Imperial College London

FrB19 Room 4.1.R
WSFDD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part II (Workshop)
Chair: Tadokoro, Satoshi Tohoku University
11:30-13:30 FrB19.1
ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security*.
Tadokoro, Satoshi Tohoku University
Matsuno, Fumitoshi Kyoto University

FrB20 Room 2.1.R
WSFAM17 - Workshop on Crossmodal Learning for Intelligent Robotics, Part II (Workshop)
Chair: Parisi, German University of Hamburg
11:30-13:30 FrB20.1
Workshop on Crossmodal Learning for Intelligent Robotics*.
Parisi, German Ignacio University of Hamburg
Barros, Pablo University of Hamburg
Jirak, Doreen University of Hamburg
Tani, Jun Okinawa Institute of Science and Technology
Choe, Yoonsuck Texas A and M University

FrB21 Room 4.1.R
TUFAM03 - Robot Audition: Open Source Software HARK, Part II (Tutorial)
Chair: Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd
11:30-13:30 FrB21.1
Tutorial on Robot Audition Open Source Software HARK®

Nakadai, Kazuhiro  
Honda Research Inst. Japan Co., Ltd.

Okuno, Hiroshi G.  
Waseda University

Kumon, Makoto  
Graduate School of Science and Technology, Kumamoto

Ince, Gokhan  
Istanbul Technical University

Sugiyama, Osamu  
Kyoto University Hospital

Itoyama, Katsutoshi  
Kyoto University

Kojima, Ryosuke  
Kyoto University

Suzuki, Reiji  
Nagoya University

Hoshiba, Kotaro  
Kanagawa University

FrB22  
Room 2.R2

TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research, Part II (Tutorial)

Chair: Kazanzides, Peter  
Johns Hopkins University

11:30-13:30  
FrB22.1

Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research®

Kazanzides, Peter  
Johns Hopkins University

Hannaford, Blake  
University of Washington

Fischer, Gregory Scott  
Worcester Polytechnic Institute, WPI

FrB23  
Room 4.L1

WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots, Part II (Workshop)

Chair: Aksoy, Eren Erdal  
Halmstad University

11:30-13:30  
FrB23.1

Semantic Policy and Action Representations for Autonomous Robots®

Aksoy, Eren Erdal  
Halmstad University

Yang, Yezhou  
Arizona State University

Ramirez-Amaro, Karinne  
Institute for Cognitive Systems, Technische Universität München.

Dantam, Neil  
Colorado School of Mines

Cheng, Gordon  
Technical University of Munich

FrC1  
Room 1.L2

WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans, Part III (Workshop)

Chair: Villani, Luigi  
Univ. Napoli Federico II

14:30-16:30  
FrC1.1

Robotics for Logistics in Warehouses and Environments Shared with Humans®

Villani, Luigi  
Univ. Napoli Federico II

Magnusson, Martin  
Örebro University

Prassler, Erwin  
Bonn-Rhein-Sieg Univ. of Applied Sciences

Puljiz, David  
Karlsruhe Institute of Technology

De la Riva, Jesús Julián  
ITAINNOVA / Instituto Tecnológico de Aragón, Spain

FrC2  
Room 1.L3

WSFPM23 - Unconventional Sensing and Processing for Robotic Visual Perception (PM), Part I (Workshop)

Chair: Sandamirskaya, Yulia  
University and ETH Zurich

14:30-16:30  
FrC2.1

Unconventional Sensing and Processing for Robotic Visual Perception®

Sandamirskaya, Yulia  
University and ETH Zurich

Martel, Julien  
University of Zurich & ETH Zurich

FrC3  
Room 4.L3


Chair: Katzschmann, Robert  
Massachusetts Institute of Technology

14:30-16:30  
FrC3.1

Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots®

Katzschmann, Robert Kevin  
Massachusetts Institute of Technology

Della Santina, Cosimo  
Centro E. Piaggio

Rus, Daniela  
MIT

FrC4  
Room 1.R3

WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part III (Workshop)

Chair: Wurdemann, Helge Arne  
University College London

14:30-16:30  
FrC4.1

Workshop on Shape Changing Robotic Structures and Interfaces®

Wurdemann, Helge Arne  
University College London

Roudaut, Anne  
University of Bristol

Dogramadzi, Sanja  
University of the West of England

Paik, Jamie  
Ecole Polytechnique Federale de Lausanne

Girouard, Audrey  
Carleton University

Althoefer, Kaspar  
Queen Mary University of London

Ho, Van  
Japan Advanced Institute of Science and Technology

FrC5  
Room 2.L2

WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part III (Workshop)

Chair: Sun, Yu  
University of South Florida

14:30-16:30  
FrC5.1

Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions®

Sun, Yu  
University of South Florida

Moon, Hyungpil  
Sungkyunkwan University

Falco, Joe  
NIST

Calli, Berk  
Worcester Institute of Technology

FrC6  
Auditorium

WSFFD04 - Machine Learning in Robot Motion Planning, Part III (Workshop)

Chair: Choudhury, Sanjiban  
University of Washington

14:30-16:30  
FrC6.1

Machine Learning in Robot Motion Planning®

Choudhury, Sanjiban  
University of Washington

Dey, Debadeepta  
Microsoft

Srinivasa, Siddhartha  
University of Washington
FrC7  Room 1.L5
WSFFD02 - Vision-Based Drones: What’s Next? Part III (Workshop)
Chair: Loianno, Giuseppe  New York University
14:30-16:30  FrC7.1
Vision-Based Drones: What’s Next?*
Loianno, Giuseppe  New York University
Scaramuzza, Davide  University of Zurich
Kumar, Vijay  University of Pennsylvania

FrC8  Room 4.R1
WSFPM24 - Automating Robot Experiments: Manipulation and Learning, Part I (Workshop)
Chair: Kroemer, Oliver  Carnegie Mellon University
14:30-16:30  FrC8.1
Automating Robot Experiments: Manipulation and Learning*
Kroemer, Oliver  Carnegie Mellon University
Pinto, Lerrel Joseph  Carnegie Mellon University
Muelling, Katharina  Carnegie Mellon University

FrC9  Room 2.R1
WSFD14 - Development of Agile Robots, Part III (Workshop)
Chair: Kashiri, Navvab  Istituto Italiano Di Tecnologia
14:30-16:30  FrC9.1
Development of Agile Robots*
Kashiri, Navvab  Istituto Italiano Di Tecnologia
Malzahn, Jörn  Istituto Italiano Di Tecnologia
Tsagarakis, Nikos  Istituto Italiano Di Tecnologia

FrC10  Room 4.L4
WSFPM26 - towards Intelligent Social Robots: From Naive Robots to Robot Sapiens, Part I (Workshop)
Chair: Aly, Amir  Ritsumeikan University
14:30-16:30  FrC10.1
Towards Intelligent Social Robots: From Naive Robots to Robot Sapiens*
Aly, Amir  Ritsumeikan University

FrC11  Room 4.R3
Chair: Albert, Fabien  Airbus
14:30-16:30  FrC11.1
Robot Safety: Filling the Gap between Technology Offer and Industry Needs, for a Fully Deployable Human Robot Collaboration*
Albert, Fabien  Airbus
Cristalli, Cristina  Loccioni Group - AEA

FrC12  Room 4.R5
WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part III (Workshop)
Chair: Ishiguro, Hiroshi  Osaka University
14:30-16:30  FrC12.1
Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction*
Ishiguro, Hiroshi  Osaka University
Kawahara, Tatsuya  Kyotou Univ.
Nakamura, Yutaka  Osaka university

FrC13  Room 2.L5 KUKA
WSFFD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part III (Workshop)
Chair: Alonso-Mora, Javier  Delft University of Technology
14:30-16:30  FrC13.1
Second Workshop on Multi-Robot Perception-Driven Control and Planning*
Alonso-Mora, Javier  Delft University of Technology
Montijano, Eduardo  Universidad de Zaragoza
Rus, Daniela  MIT
Schwager, Mac  Stanford University

FrC14  Room 1.R4
TUFFD01 - Aerial Robotic Manipulation, Part III (Tutorial)
Chair: Heredia, Guillermo  University of Seville
14:30-16:30  FrC14.1
Aerial Robotic Manipulation*
Heredia, Guillermo  University of Seville

FrC15  Room 2.R4
WSFFD11 - Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control, Part III (Workshop)
Chair: Rabenorosoa, Kanty  Univ. Bourgogne Franche-Comté, CNRS
14:30-16:30  FrC15.1
Continuum and Soft Robots (CSR) for Medical Interventions: Modeling, Fabrication, and Control*
Rabenorosoa, Kanty  Univ. Bourgogne Franche-Comté, CNRS
Burgner-Kahrs, Jessica  Leibniz Universität Hannover
Cianchetti, Matteo  Scuola Superiore Sant’Anna
Rucker, Caleb  University of Tennessee

FrC16  Room 1.R5
WSFFD06 - Collaboratively Working towards Ontology-Based Standards for Robotics and Automation, Part III (Workshop)
Chair: Bermejo, Julita  Universidad Politecnica De Madrid
14:30-16:30  FrC16.1
Collaboratively Working towards Ontology-Based Standards for Robotics and Automation*
Bermejo, Julita  Universidad Politecnica De Madrid
Chibani, Abdelghani  Lisi Lab Paris EST University
Gonçalves, Paulo  Instituto Politecnico De Castelo Branco
Li, Howard  University of New Brunswick
Jordan, Sara Rene  Virginia Tech
Olivares, Alberto  Universidad de Castilla-La Mancha
Olszewska, Joanna Isabelle  University of Gloucestershire, United Kingdom
WSFPM27 - RoboCup Humanoid League, Part I (Workshop)
Chair: Hofer, Ludovic
LaBRI, Bordeaux University
14:30-16:30
RoboCup Humanoid League∗.

FrC19
WSFFD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part III (Workshop)
Chair: Tadokoro, Satoshi
Tohoku University
14:30-16:30
ImPACT Tough Robotics Challenge - a National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security∗.

FrC20
WSFPM22 - Robots That Learn and Reason: Towards Learning Logic Rules from Noisy Data, Part I (Workshop)
Chair: Moreno, Plinio
IST-ID
14:30-16:30
Robots That Learn and Reason: Towards Learning Logic Rules from Noisy Data∗.

FrC21
WSFPM16 - Human-Aiding Robotics: Open Issues and Future Direction, Part I (Workshop)
Chair: Faragasso, Angela
The University of Tokyo
14:30-16:30
Human-Aiding Robotics: Open Issues and Future Direction∗.
### Part IV (Workshop)

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Room</th>
<th>Details</th>
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</table>
| **WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part IV** (Workshop) | 1.R3 | Chair: Wurdemann, Helge Arne, University College London. FrD4.1

**Workshop on Shape Changing Robotic Structures and Interfaces**

- Wurdemann, Helge Arne, University College London
- Roudaut, Anne, University of Bristol
- Dogramadzi, Sanja, University of the West of England
- Paik, Jamie, Ecole Polytechnique Federale de Lausanne
- Girouard, Audrey, Carleton University
- Althoefer, Kaspar, Queen Mary University of London
- Ho, Van, Japan Advanced Institute of Science and Technology

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| **WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part IV** (Workshop) | 2.L2 | Chair: Sun, Yu, University of South Florida. FrD5.1

**Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions**

- Sun, Yu, University of South Florida
- Moon, Hyungpil, Sungkyunkwan University
- Falco, Joe, NIST
- Calli, Berk, Worcester Institute of Technology

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| **WSFFD04 - Machine Learning in Robot Motion Planning, Part IV** (Workshop) | Auditorium | Chair: Choudhury, Sanjiban, University of Washington. FrD6.1

**Machine Learning in Robot Motion Planning**

- Choudhury, Sanjiban, University of Washington
- Dey, Debadeepta, Microsoft
- Srinivasa, Siddhartha, University of Washington
- Toussaint, Marc, University of Stuttgart
- Boots, Byron, Georgia Institute of Technology

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| **WSFFD02 - Vision-Based Drones: What's Next? Part IV** (Workshop) | 1.L5 | Chair: Loianno, Giuseppe, New York University. FrD7.1

**Vision-Based Drones: What's Next?**

- Loianno, Giuseppe, New York University
- Scaramuzza, Davide, University of Zurich
- Kumar, Vijay, University of Pennsylvania

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| **WSFPM24 - Automating Robot Experiments: Manipulation and Learning, Part II** (Workshop) | 4.R1 | Chair: Kroemer, Oliver, Carnegie Mellon University. FrD8.1

**Automating Robot Experiments: Manipulation and Learning**

- Kroemer, Oliver, Carnegie Mellon University
- Pinto, Lerrel Joseph, Carnegie Mellon University
- Muelling, Katharina, Carnegie Mellon University

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| **WSFD14 - Development of Agile Robots, Part IV** (Workshop) | 2.R1 | Chair: Kashiri, Navvab, Istituto Italiano Di Tecnologia. FrD9.1

**Development of Agile Robots**

- Kashiri, Navvab, Istituto Italiano Di Tecnologia
- Maizahn, Jörn, Istituto Italiano Di Tecnologia
- Tsagarakis, Nikos, Istituto Italiano Di Tecnologia

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| **WSFPM26 - towards Intelligent Social Robots: From Naive Robots to Robot Sapiens, Part II** (Workshop) | 4.L4 | Chair: Aly, Amir, Ritsumeikan University. FrD10.1

**Towards Intelligent Social Robots: From Naive Robots to Robot Sapiens**

- Aly, Amir, Ritsumeikan University

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**Robot Safety: Filling the Gap between Technology Offer and Industry Needs, for a Fully Deployable Human Robot Collaboration**

- Albert, Fabien, Airbus
- Cristalli, Cristina, Locioungi Group - AEA

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| **WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part IV** (Workshop) | 4.R5 | Chair: Ishiguro, Hiroshi, Osaka University. FrD12.1

**Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction**

- Ishiguro, Hiroshi, Osaka University
- Kawahara, Tatsuya, Kyoto Univ.
- Nakamura, Yutaka, Osaka University

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| **WSFFD12 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction** (Workshop) | 2.L5 KUKA | Chair: Ishiguro, Hiroshi, Osaka University. FrD13.1

**Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction**

- Ishiguro, Hiroshi, Osaka University
- Kawahara, Tatsuya, Kyoto Univ.
- Nakamura, Yutaka, Osaka University
17:00-19:00 FrD22.1

**Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research**.

Kazanzides, Peter  
Johns Hopkins University

Hannaford, Blake  
University of Washington

Fischer, Gregory Scott  
Worcester Polytechnic Institute, WPI

17:00-19:00 FrD23.1

**Semantic Policy and Action Representations for Autonomous Robots**.

Aksoy, Eren Erdal  
Halmstad University

Yang, Yezhou  
Arizona State University

Ramirez-Amaro, Karinne  
Institute for Cognitive Systems, Technische Universität München.

Dantam, Neil  
Colorado School of Mines

Cheng, Gordon  
Technical University of Munich