

# The 28th IEEE International Conference on Robot & Human Interactive Communication

Ro-Man 2019

14 – 18 Oct, 2019

Le Meridien, Windsor Place, New Delhi, India

## Technical Program Schedule

15 Oct 2019 (Day 1)

**8:30AM**      **Inauguration**

**9:00-10:00**    **Plenary Talk I**

**10:00-10:30**   **Tea Break**

**10:30-12:00**   **Parallel Session 1**

Cognitive Interaction Design <b>Regular Session 1</b>	Human Robot interaction <b>Regular Session 2</b>	Social Robots – I <b>Regular Session 3</b>	Tele-operation and Autonomous Robots <b>Regular Session 4</b>	Transparency and trust in Human Robot interaction <b>Special Session 1</b>
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**12:00-13:00**   **Lunch Break**

**13:00-14:30**   **Parallel Session 2**

Robots in Education <b>Regular Session 5</b>	Human Centred Robot Design <b>Regular Session 6</b>	Social Robots – II <b>Regular Session 7</b>	Situation awareness and Spatial Cognition <b>Regular Session 8</b>	Social and Affective Robots <b>Special Session 2</b>
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**14:30-15:00**   **Tea Break**

**15:00-16:30**   **Parallel Session 3**

Cognitive Skills and Metal Models <b>Regular Session 9</b>	HRI and Collaboration in Manufacturing Environment <b>Regular Session 10</b>	Social Robots – III <b>Regular Session 11</b>	Visual Perception and Autonomous Robots <b>Regular Session 12</b>	Social Human Robot Interaction of service Robots <b>Special Session 3</b>
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**16:30-17:30**   **Plenary Talk II**

16 Oct 2019 (Day 2)

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**9:00-10:00 Plenary Talk III**

**10:00-10:30 Tea Break**

**10:30-12:00 Parallel Session 4**

Machine Learning and Adaptation  <b>Regular Session 13</b>	Imitation Learning  <b>Regular Session 14</b>	Motion Planning Navigation & Control in Human Centred Environment <b>Regular Session 15</b>	Visual Perception and Autonomous Robots  <b>Regular Session 16</b>	Robotics for Rehabilitation  <b>Special Session 4</b>
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**12:00-13:00 Lunch Break**

**13:00-15:00 Poster Session (55 Papers)**

**15:00-15:30 Tea Break**

**15:30-17:00 Parallel Session 5**

Human Robot Collaboration and Cooperation  <b>Regular Session 17</b>	Linguistic Communication and Dialogue  <b>Regular Session 18</b>	Robot Companions  <b>Regular Session 19</b>	Therapy and Rehabilitation  <b>Regular Session 20</b>	Medical Robotics & Intelligent Control Systems in the Indian Context <b>Special Session 5</b>
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**17:00-18:00 Panel Discussion on Responsible Robotics and AI for the Real World**

**19:00 Onwards – Banquet Dinner and Award Ceremony**

## **Special Session 1: Transparency and Trust in Human Robot Interaction**

**23, 161, 206, 71, 75, 99**

### **23- Verbal Explanations for Deep Reinforcement Learning Neural Networks with Attention on Extracted Features**

Wang Xinzhi	Tsinghua University,
Yuan Shengcheng	LazyComposer Inc., Beijing
Zhang Hui	Tsinghua University
Sycara Katia	Carnegie Mellon University
Lewis Mike	Univ of Pittsburgh

### **161 – Coherent and Incoherent Robot Emotional Behavior for Humorous and Engaging Recommendations**

Rossi Silvia	University of Naples Federico II
Cimmino Teresa	University of Naples Federico II
Matarese Marco	University of Naples Federico II
Raiano, Mario	University of Naples Federico II

### **206 – Getting to Know Kaspar: Effects of People's Awareness of a Robot's Capabilities on Their Trust in the Robot**

Rossi Alessandra	University of Hertfordshire
Moros Silvia	University of Hertfordshire
Koay Kheng Lee	University of Hertfordshire
Walters Michael Leonard	University of Hertfordshire
Dautenhahn Kerstin	University of Waterloo

### **71 – Privacy First: Designing Responsible and Inclusive Social Robot Applications for in the Wild Studies**

Tonkin Meg	University of Technology Sydney
Vitale Jonathan	University of Technology Sydney
Herse Sarita	University of Technology Sydney
Raza Syed Ali	University of Technology Sydney
Madhisetty Srinivas	University of Technology Sydney
Kang Le, Vu	University of Technology Sydney
Johnston Benjamin	University of Technology Sydney
Williams Mary-Anne	University of Technology Sydney

### **75 – Trust Repair in Human-Swarm Teams**

Liu, Rui	Kent State University
Cai, Zekun	University of Pittsburgh
Lewis, Mike	Univ of Pittsburgh
Lyons, Joseph	AFRL
Sycara, Katia	Carnegie Mellon University

### **99 – You Are Doing so Great! the Effect of a Robots Interaction Style on Self-Efficacy in HRI**

Zafari Setareh	Vienna University of Technology
Schwaninger Isabel	TU Wien
Hirschmanner Matthias	TU Wien

Schmidbauer Christina	Vienna University of Technology
Weiss Astrid	Vienna University of Technology
Koeszegi Sabine Theresia	Vienna University of Technology

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## **Special Session 2: Social and affective Robots**

### **183, 210, 298, 162, 193, 271**

#### **183 – Designing an Experimental and a Reference Robot to Test and Evaluate the Impact of Cultural Competence in Socially Assistive Robotics**

Recchiuto Carmine Tommaso	University of Genova
Papadopoulos Chris,	University of Bedfordshire UK
Hill Tetiana,	University of Bedfordshire UK
Castro Nina,	Advinia Healthcare, UK
Bruno Barbara,	University of Genova
Papadopoulos Irena,	Middlesex University Higher Education Corporation
Sgorbissa Antonio,	University of Genova

#### **210 – Using Socially Expressive Mixed Reality Arms for Enhancing Low-Expressivity Robots**

Groechel Thomas,	Univeristy of Southern California
Shi Zhonghao,	Univeristy of Southern California
Pakkar Roxanna,	University of Southern California
Mataric Maja,	University of Southern California

#### **298 – Wearable Affective Robot That Detects Human Emotions from Brain Signals by Using Deep Multi-Spectrogram Convolutional Neural Networks (Deep MS-CNN)**

Wang Ker-Jiun	University of Pittsburgh
ZHENG Caroline Yan	Royal College of Art

#### **162 – Real-Time Gazed Object Identification with a Variable Point of View Using a Mobile Service Robot**

Yuguchi Akishige	Nara Institute of Science and Technology
Inoue Tomoaki	Nara Institute of Science and Technology
Garcia Ricardez Gustavo Alfonso	Nara Institute of Science and Techonology
Ding Ming	Nara Institute of Science and Technology
Takamatsu Jun	Nara Institute of Science and Technology
Ogasawara Tsukasa	Nara Institute of Science and Technology

#### **193 – A Reinforcement-Learning Approach for Adaptive and Comfortable Assistive Robot Monitoring Behaviors**

Raggioli, Luca	University of Naples Federico II
Rossi, Silvia	University of Naples Federico II

**271 – Proposing Human-Robot Trust Assessment through Tracking Physical Apprehension Signals in Close-Proximity Human-Robot Collaboration**

Hald, Kasper                      Aalborg University  
Rehm, Matthias                 Aalborg University  
Moeslund, Thomas B.         Aalborg University

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**Special session 3: Social Human Robot Interaction of Service Robots  
89, 269, 278, 303, 38, 182**

**89 – Human Interaction and Improving Knowledge through Collaborative Tour Guide Robots**

Velentza, Anna Maria University of Birmingham, University of Macedonia  
Heinke, Dietmar                University of Birmingham  
Wyatt, Jeremy                 University of Birmingham

**269 – Identity, Gender, and Age Recognition Convergence System for Robot Environments**

Jang, Jaeyoon ETRI

**278 – Hospital Receptionist Robot V2: Design for Enhancing Verbal Interaction with Social Skills**

Ahn, Ho Seok                    University of Auckland  
Lim, Jong Yoon                 University of Auckland  
Ahn, Byeong-Kyu               Sungkyunkwan University  
Johanson, Deborah             University of Auckland  
Hwang, Eui Jun                University of Auckland  
Lee, Min Ho                     University of Auckland  
Broadbent, Elizabeth           University of Auckland  
MacDonald, Bruce              University of Auckland

**303 – Developing a Questionnaire to Evaluate Customers' Perception in the Smart City Robotic Challenge**

Wang, Lun                      Sapienza University of Rome  
Iocchi, Luca                    Sapienza University of Roma  
Marrella, Andrea               Sapienza University of Rome, Italy  
Nardi, Daniele                 Sapienza University of Rome

**38 – TeachMe: Three-phase learning framework for robotic motion imitation based on interactive teaching and reinforcement learning**

Kim, Taewoo                    University of Science and Technology  
Lee, Joo-Haeng                 ETRI

## **182 – Lindsey the Tour Guide Robot - Usage Patterns in a Museum Long-Term Deployment**

Del Duchetto, Francesco	University of Lincoln
Baxter, Paul Edward	University of Lincoln
Hanheide, Marc	University of Lincoln

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## **Special Session 4: Robotics for Rehabilitation 80, 116, 205, 166, 88, 112**

### **80 – Preliminary Evaluation of a Closed-Loop Social Robot for Reading Comprehension Testing**

Migovich, Miroslava	University of Tennessee
McCarthy, Jillian	University of Tennessee Health Science Center
Wade, Eric	University of Tennessee

### **116 – Evaluation of Physical Therapy through Analysis of Depth Images**

Kramer, Ivanna	University of Koblenz-Landau
Memmesheimer, Raphael	University of Koblenz-Landau
Schmidt, Niko	University of Koblenz-landau
Paulus, Dietrich	University Koblenz-Landau

### **205 – Optimal Feature Selection for EMG-Based Finger Force Estimation Using LightGBM Model**

Ye, Yuhang	South China University of Technology
Liu, Chao	LIRMM (UMR5506), CNRS, France
Zemiti, Nabil	LIRMM (UMR5506), CNRS, France
Yang, Chenguang	University of the West of England

### **166 – Learning Robot Policies Using a High-Level Abstraction Persona-Behaviour Simulator**

Andriella, Antonio	IRI, CSIC-UPC
Torras, Carme	CSIC – UPC
Alenyà, Guillem	CSIC-UPC

### **88 – Estimating the Effect of Robotic Intervention on Elbow Joint Motion**

Ghonasgi, Keya	The University of Texas at Austin
De Oliveira, Ana Christine	The University of Texas at Austin
Shafer, Anna	University of Texas at Austin
Rose, Chad	University of Texas at Austin
Deshpande, Ashish	University of Texas

### **112 – Development and Applicability of a Cable-driven Wearable Adaptive Rehabilitation Suit (WeARS)**

Iyer, S. Srikesh	IIT Gandhinagar
V Joseph, Joel	Indian Institute of Technology Gandhinagar
Nakka, S S Sanjeevi	Indian Institute of Technology Gandhinagar
Singh, Yogesh	Indian Institute of Technology Gandhinagar
Vashista, Vineet	Indian Institute of Technology Gandhinagar

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## **Special Session 5: Medical Robotics and Intelligent Control Systems in the Indian Context**

**276, 301, 273, 295, 227, 235**

### **276 – Bondgraph Modelling for the Master-Slave Robotic Teleoperation System**

Maria Joseph, Felix Orlando Indian Institute of Technology Roorkee

### **301 – Simultaneously Concentrated PSWF-Based Synchrosqueezing S-Transform and Its Application to R Peak Detection in ECG Signal**

Singh, Neha	IIT Roorkee
Deora, Puneesh	IIT Roorkee
Pradhan, PyariMohan	IIT Roorkee

### **273 – Continuous Higher Order Sliding Mode Control of Bevel-Tip Needle for Percutaneous Interventions**

Maria Joseph, Felix Orlando Indian Institute of Technology Roorkee

### **295 - Development of an Intelligent Cane for Visually Impaired Human Subjects**

Maria Joseph, Felix Orlando Indian Institute of Technology Roorkee

### **227 – Intention Detection and Gait Recognition (IDGR) System for Gait Assessment: A Pilot Study**

Singh, Yogesh	Indian Institute of Technology Gandhinagar
Kher, Manan	Institute of Technology, Nirma University
Vashista, Vineet	Indian Institute of Technology Gandhinagar

### **235 - Transferring Dexterous Surgical Skill Knowledge between Robots for Semi-Autonomous Teleoperation**

Md Masudur Rahman,	Purdue University - West Lafayette
Natalia Sanchez-Tamayo,	Purdue University - West Lafayette
Glebys Gonzalez,	Purdue University - West Lafayette
Mridul Agarwal,	Purdue University - West Lafayette
Aggarwal Vaneet,	Purdue University - West Lafayette
Richard Voyles,	Purdue University - West Lafayette
Yexiang Xue,	Purdue University - West Lafayette
Juan Wachs,	Purdue University - West Lafayette

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## **Regular Session 1: Cognitive Interaction Design**

**64, 91, 172, 18, 239, 10**

### **64 – Learning Optimal Parameterized Policy for High Level Strategies in a Game Setting**

Prakash, Ravi Indian Institute of Technology, Kanpur  
Vohra, Mohit Indian Institute of Technology, Kanpur  
Behera, Laxmidhar IIT Kanpur

### **91 – Learning Context-Sensitive Strategies in Space Fortress**

Agarwal, Akshat Carnegie Mellon University  
Hope, Ryan Carnegie Mellon University  
Sycara, Katia Carnegie Mellon University

### **172 – Estimating Optimal Placement for a Robot in Social Group Interaction**

Pathi, Sai Krishna Örebro University  
Kristofferson, Annica Mälardalen University  
Kiselev, Andrey Örebro University  
Loutfi, Amy Örebro University

### **18 – ROS-TiPIEx: How to Make Experts in A.I. Planning and Robotics Talk Together and Be Happy**

La Viola, Carlo ISTC-CNR  
Orlandini, Andrea National Research Council of Italy  
Umbrico, Alessandro National Research Council of Italy  
Cesta, Amedeo CNR -- National Research Council of Italy, ISTC

### **239 – Robot with an Olfactory Display: Decorating its Movements by Smells**

Senbonmatsu, Hikaru University of Tsukuba  
Tanaka, Fumihide University of Tsukuba

### **10 – Learning Sequential Human-Robot Interaction Tasks from Demonstrations: The Role of Temporal Reasoning**

Carpio Mazariegos, Estuardo Rene University of New Hampshire  
Clark-Turner, Madison University of New Hampshire  
Begum, Momotaz University of New Hampshire

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## **Regular Session 2: Human robot Interaction**

**26, 35, 45, 95, 180, 104**

### **26 – Generation of Expressive Motions for a Tabletop Robot Interpolating from Hand-Made Animations**

Mier, Gonzalo	Pablo de Olavide University
Caballero, Fernando	Universidad Pablo de Olavide
Nakamura, Keisuke	Honda Research Institute Japan Co., Ltd.
Merino, Luis	Universidad Pablo de Olavide
Gomez, Randy	Honda Research Institute Japan Co., Ltd.

### **35 – A Common Social Distance Scale for Robots and Humans**

Banks, Jaime	Texas Tech University
Edwards, Autumn	Western Michigan University

### **45 – Transparent Robot Behavior Using Augmented Reality in Close Human-Robot Interaction**

Bolano, Gabriele	FZI Forschungszentrum Informatik
Juelg, Christian	FZI Forschungszentrum Informatik
Roennau, Arne	FZI Forschungszentrum Informatik , Karlsruhe
Dillmann, Rüdiger	FZI - Forschungszentrum Informatik - Karlsruhe

### **95 – Your Robot Is Watching: Using Surface Cues to Evaluate the Trustworthiness of Human Actions**

Surendran, Vidullan	Pennsylvania State University
Wagner, Alan Richard	Penn State University

### **180 – Spatially Situated End-User Robot Programming in Augmented Reality**

Kapinus, Michal	Brno University of Technology
Beran, Vitezslav	Brno University of Technology
Materna, Zdenek	Brno University of Technology
Bambusek, Daniel	Brno University of Technology

### **104 – Human-Robot Interaction through Fingertip Haptic Devices for Cooperative Manipulation Tasks**

Musić, Selma	Technische Universität München
Prattichizzo, Domenico	University of Siena
Hirche, Sandra	Technische Universität München

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## **Regular Session 3: Social Robots I**

**36, 41, 44, 62, 73, 77**

### **36 – Social and Entertainment Gratifications of Videogame Play Comparing Robot, AI, and Human Partners**

Bowman, Nick      Texas Tech University  
Banks, Jaime      Texas Tech University

### **41 – The Influence of Emotions on Time Perception in a Cognitive System for Social Robotics**

Cominelli, Lorenzo    E. Piaggio Research Center  
Garofalo, Roberto    E. Piaggio Research Center  
De Rossi, Danilo      University of Pisa

### **44 – Shakespeare and Robots: Participatory Performance Art for Older Adults**

Greer, Julienne      University of Texas at Arlington  
Doelling, Kris      University of Texas at Arlington  
Xu, Ling              University of Texas at Arlington  
Fields, Noelle      University of Texas at Arlington

### **62 – Recognition of Aggressive Interactions of Children Toward Robotic Toys**

Alhaddad, Ahmad Yaser    Qatar University  
Cabibihan, John-John      Qatar University  
Bonarini, Andrea          Politecnico di Milano

### **73 – The Power to Persuade: A Study of Social Power in Human-Robot Interaction**

Hashemian, Mojgan      INESC-ID  
Paiva, Ana              INESC-ID and Instituto Superior Técnico  
Mascarenhas, Samuel      INESC-ID / Instituto Superior Técnico, University of Lisbon  
Santos, Pedro A.          Instituto Superior Técnico  
Prada, Rui              INESC ID, Instituto Superior Técnico, University of Lisbon

### **77 – Eyes on You: Field Study of Robot Vendor Using Human-Like Eye Component “Akagachi”**

Hayashi, Kotaro          Toyohashi University of Technology  
Toshimitsu, Yasunori      MIT

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## **Regular Session 4: Tele-operation and Autonomous Robots**

### **31, 60, 78, 94, 212, 55**

#### **31 – Haptic Directional Information for Spatial Exploration**

ghosh, ayan                      The University of Sheffield  
Penders, Jacques                Sheffield Hallam University  
Soranzo, Alessandro          Sheffield Hallam University

#### **60 – User Interface Tradeoffs for Remote Deictic Gesturing**

Fitter, Naomi T.                University of Southern California  
Joung, Youngseok              University of Southern California  
Hu, Zijian                        University of Southern California  
Demeter, Marton                University of Southern California  
Mataric, Maja                  University of Southern California

#### **78 – Improving Robot Transparency: An Investigation with Mobile Augmented Reality**

Rotsidis, Alexandros            University of Bath  
Theodorou, Andreas             University of Bath  
Bryson, Joanna                 University of Bath  
Wortham, Robert Hale          University of Bath

#### **94 – Investigation of the Driver's Seat That Displays Future Vehicle Motion**

Yuki Ishii  
Ikeda, Tetsushi                 Hiroshima City University  
Kobayashi, Toru                Hiroshima City University  
Kato, Yumiko                    St. Marianna University School of Medicine  
Utsumi, Akira                  ATR Intelligent Robotics and Communication Labs.  
Nagasawa, Isamu                SUBARU Co., LTD.  
Iwaki, Satoshi                  Hiroshima City University

#### **212 – Combining Electromyography and Fiducial Marker Based Tracking for Intuitive**

Telemanipulation with a Robot Arm Hand System

Dwivedi, Anany                 University of Auckland  
Gorjup, Gal                      University of Auckland  
Kwon, Yongje                  University of Auckland  
Liarokapis, Minas                University of Auckland

#### **55 – Humanoid Co-Workers: How Is It Like to Work with a Robot?**

Vishwanath, Ajay                Nanyang Technological University  
Singh, Aalind                    Institute for Media Innovation  
Chua, Yi Han Victoria          Nanyang Technological University  
Dauwels, Justin                Nanyang Technological University  
Thalmann, Nadia Magnenat     Nanyang Technological University

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## **Regular Session 5: Robots in Education**

**79, 159, 220, 257, 290, 297**

### **79 – A Participatory Design Process of a Robotic Tutor of Assistive Sign Language for Children with Autism**

Axelsson, Minja	Aalto University
Racca, Mattia	Aalto University
Weir, Daryl	Futurice Oy
Kyrki, Ville	Aalto University

### **159 – Robot Analytics: What Do Human-Robot Interaction Traces Tell Us about Learning?**

Nasir, Jauwairia	Swiss Federal Institute of Technology in Lausanne (EPFL)
Norman, Utku	EPFL
JOHAL, Wafa	EPFL
Olsen, Jennifer	EPFL
Shahmoradi, Sina	EPFL
Dillenbourg, Pierre	EPFL

### **220 – Improv with Robots: Creativity, Inspiration, Co-Performance**

Rond, Jesse	Oregon State University
Sanchez, Alan	Oregon State University
Berger, Jaden	Oregon State University
Knight, Heather	Oregon State University

### **257 – CoWriting Kazakh: Transitioning to a New Latin Script Using Social Robots**

Kim, Anton	Nazarbayev University
Omarova, Meruyert	Nazarbayev University
Zhaksylyk, Adil	Nazarbayev University
asselborn, thibault	EPFL
JOHAL, Wafa	EPFL
Dillenbourg, Pierre	EPFL
Sandygulova, Anara	Nazarbayev University

### **290 – Design and Perception of a Social Robot to Promote Hand Washing among Children in a Rural Indian School**

Radhakrishnan, Unnikrishnan	Amrita University
Deshmukh, Amol	University of Glasgow
Ramesh, Shanker	AMMACHI Labs, Amrita Vishwa Vidyapeetham
K Babu, Sooraj	AMMACHI Labs, Amrita Vishwa Vidyapeetham
A, Parameswari	AMMACHI labs, Amrita Vishwa Vidyapeetham
Rao R, Bhavani	Amrita Vishwa vidyapeetham University

### **297 – The Effect of Interaction and Design Participation on Teenagers' Attitudes towards Social Robots**

Björling, Elin	University of Washington
Xu, Wendy M.	University of Washington

Cabrera, Maria Eugenia  
Cakmak, Maya

University of Washington  
University of Washington

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## **Regular Session 6: Human Centred Robot Design**

**24, 68, 175, 178, 218, 265**

### **24 – Unconventional Uses of Structural Compliance in Adaptive Hands**

Chang, Che-Ming      University of Auckland  
Gerez, Lucas          University of Auckland  
Elangovan, Nathan    University of Auckland  
Zisimatos, Agisilaos   National Technical University of Athens  
Liarokapis, Minas     University of Auckland

### **68 – Design and Analysis of a Soft Bidirectional Bending Actuator for Human-Robot Interaction Applications**

SINGH, KUMAR SURJDEO      IIT Madras  
Thondiyath, Asokan          IIT Madras

### **175 – Instrumented Shoe Based Foot Clearance and Foot-To-Ground Angle Measurement System for the Gait Analysis**

Tiwari, Ashutosh      Indian Institute of Technology  
Saxena, somya          PGI Chandigarh  
Joshi, Deepak          Indian Institute of Technology

### **178 – Energy Conscious Over-Actuated Multi-Agent Payload Transport Robot**

Tallamraju, Rahul      International Institute of Information Technology, Hyderabad  
Verma, Pulkit          International Institute of Information technology, Hyderabad  
Sripada, Venkatesh    Oregon State University, Corvallis, USA  
Agrawal, Shrey          International Institute of Information Technology, Hyderabad  
Karlalalem, Kamalakar      IIIT, Hyderabad

### **218 – Effect of Human Hand Dynamics on Haptic Rendering of Stiff Springs Using Virtual Mass Feedback**

Desai, Indrajit          Indian Institute of Technology Bombay  
Gupta, Abhishek        Indian Institute of Technology, Bombay  
Chakraborty, Debraj    Indian Institute of Technology Bombay

### **265 – DronePick: Object Picking and Delivery Teleoperation with the Drone Controlled by a Wearable Tactile Display**

Ibrahimov, Roman      Skolkovo Institute of Technology and Science  
Tsykunov, Evgeny      Skolkovo Institute of Science and Technology  
Shirokun, Vladimir    Skolkovo institute of science and technology

## **Regular Session 7: Social Robots II**

### **87, 108, 113, 128, 134, 135**

#### **87 - Design of a Robotic Crib Mobile to Support Studies in the Early Detection of Cerebral Palsy: A Pilot Study**

Jamshad, Rabeya	Georgia Institute of Technology
Fry, Katelyn	Georgia Institute of Technology
Chen, Yu-ping	Georgia State University
Howard, Ayanna	Georgia Institute of Technology

#### **108 – AppGAN: Generative Adversarial Networks for Generating Robot Approach Behaviors into Small Groups of People**

Yang, Fangkai	KTH Royal Institute of Technology
Peters, Christopher	Royal Institute of Technology

#### **113 – Effective Robot Evacuation Strategies in Emergencies**

Nayyar, Mollik	The Pennsylvania State University
Wagner, Alan Richard	Penn State University

#### **128 – Surprise! Predicting Infant Visual Attention in a Socially Assistive Robot Contingent Learning Paradigm**

Klein, Lauren	University of Southern California
Itti, Laurent	University of Southern California
Smith, Beth	University of Southern California
Rosales, Marcelo R.	University of Southern California
Nikolaidis, Stefanos	UNIVERSITY OF SOUTHERN CALIFORNIA
Mataric, Maja	University of Southern California

#### **134 – Learning Socially Appropriate Robot Approaching Behaviour Toward Groups Using Deep Reinforcement Learning**

Gao, Yuan	Uppsala University
Yang, Fangkai	KTH Royal Institute of Technology
Frisk, Martin	Uppsala University
Hernandez, Daniel	University of York
Peters, Christopher	Royal Institute of Technology
Castellano, Ginevra	Uppsala University

#### **135 – What Do Children Want from a Social Robot? Toward Gratifications Measures for Child-Robot Interaction**

De Jong, Chiara	University of Amsterdam
Kühne, Rinaldo	University of Amsterdam
Peter, Jochen	University of Amsterdam
van Straten, Caroline Lianne	University of Amsterdam
Barco, Alex	University of Amsterdam

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## **Regular Session 8: Situation Awareness and Spatial Cognition**

**223, 238, 280, 299, 157, 213**

### **223 – Desk Organization: Effect of Multimodal Inputs on Spatial Relational Learning**

Rowe, Ryan	University of Washington
Singhal, Shivam	University of Washington
Yi, Daqing	University of Washington
Bhattacharjee, Tapomayukh	University of Washington
Srinivasa, Siddhartha	University of Washington

### **238 – Audio-Visual SLAM towards Human Tracking and Human-Robot Interaction in Indoor Environments**

Chau, Aaron	University of Calgary
Sekiguchi, Kouhei	Kyoto University
Nugraha, Aditya Arie	RIKEN AIP
Yoshii, Kazuyoshi	Kyoto University
Funakoshi, Kotaro	Honda Research Inst. Japan Co., Ltd.

### **280 – Teaching a Robot How to Spatially Arrange Objects: Representation and Recognition Issues**

Buoncompagni, Luca	University of Genoa
Mastrogiovanni, Fulvio	University of Genoa

### **299 – Simple, Inexpensive, Accurate Calibration of 9 Axis Inertial Motion Unit**

Das, Shome S	Indian Institute of Science, Bangalore
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### **157 – Towards a Driver Monitoring System for Estimating Driver Situational Awareness**

Hijaz, Alaaldin	Oakland University
Louie, Wing-Yue Geoffrey	Oakland University
Mansour, Iyad	Dura Automotive

### **213 - Automatic Speech-Gesture Mapping and Engagement Evaluation in Human Robot Interaction**

Bishal Ghosh            IIT Ropar  
Abhinav Dhall         IIT Ropar  
Ekta Singla            IIT Ropar

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## **Regular Session 9: Cognitive skills and Mental Models**

**165, 181, 202, 189, 296, 21**

### **165 – Ontogenius : A Long-Term Semantic Memory for Robotic Agents**

Sarthou, Guillaume    LAAS-CNRS  
Clodic, Aurélie            LAAS - CNRS  
Alami, Rachid            CNRS

### **181 – Mind perception and causal attribution for failure in a game with a robot**

Miyake, Tomohito      Osaka University  
Kawai, Yuji                Osaka University  
Park, Jihoon                Osaka University  
Shimaya, Jiro              Osaka University  
Takahashi, Hideyuki    Osaka university  
Asada, Minoru            Osaka University

### **202 – Designing Child-Robot Interaction with Robotito**

Ewelina, Bakala         Facultad de Ingeniería, University of the Republic, Montevideo  
Visca, Jorge                Facultad de Ingeniería, University of the Republic, Montevideo  
Tejera López, Gonzalo Daniel    University of the Republic, Facultad de Ingeniería  
Seré, Andrés                Facultad de Ingeniería, University of the Republic, Montevideo  
Amorin, Guillermo      Facultad de Ingeniería, University of the Republic, Montevideo  
Gómez-Sena, Leonel    Laboratorio de Neurociencias, Facultad de Ciencias, Universidad

### **189 – Conflict Mediation in Human-Machine Teaming: Using a Virtual Agent to Support Mission Planning and Debriefing**

Haring, Kerstin Sophie    University of Denver  
Tobias, Jessica             United States Air Force Academy  
Waligora, Justin            United States Air Force Academy  
Phillips, Elizabeth         Brown University  
Tenhundfeld, Nathan      University of Alabama in Huntsville  
Gale, Lucas                 University of Southern California  
De Visser, Ewart            George Mason University  
Jonathan, Gratch            University of Southern California  
Tossell, Chad                USAF Academy



## **296 – Towards Automatic Visual Fault Detection in Highly Expressive Human-Like Animatronic Faces with Soft Skin**

Mayet, Ralf                      Hanson Robotics  
Diprose, James                Hanson Robotics  
Pandey, Amit Kumar        Hanson Robotics

## **21 – Differences of Human Perceptions of a Robot Moving Using Linear or Slow In, Slow Out Velocity Profiles When Performing a Cleaning Task**

Schulz, Trenton                      University of Oslo  
Holthaus, Patrick                      University of Hertfordshire  
Amirabdollahian, Farshid              The University of Hertfordshire  
Koay, Kheng Lee                      University of Hertfordshire  
Torresen, Jim                      University of Oslo  
Herstad, Jo                      University of Oslo

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## **Regular Session 10: HRI and Collaboration in Manufacturing Environment (144, 258, 145, 131, 256, 168)**

### **144 – Combining Interactive Spatial Augmented Reality with Head-Mounted Display for End-User Collaborative Robot Programming**

Bambusek, Daniel              Brno University of Technology, Faculty of Information Technology  
Materna, Zdenek              Faculty of Information Technology, Brno University of Technolog  
Kapinus, Michal              Brno University of Technology, Faculty of Information Technolog  
Beran, Vitezslav              Brno University of Technology  
Smrz, Pavel                      Brno University of Technology

### **258 – Modulating Human Input for Shared Autonomy in Dynamic Environments**

Mower, Christopher Edwin      University of Edinburgh  
Moura, Joao                      Heriot-Watt University  
Davies, Aled                      Costain Group PLC  
Vijayakumar, Sethu              University of Edinburgh

### **145 – Seamless Manual-To-Autopilot Transition: An Intuitive Programming Approach to Robotic Welding**

Eto, Haruhiko                      Massachusetts Institute of Technology  
Asada, Harry                      MIT

### **131 – Teaching Method for Robot's Gripper Posture with a Laser Sensor on a Pan-Tilt Actuator: A Method for Specifying Posture Feature Curves and Posture Feature Point**

Ishihata, kenji                      Hiroshima City University  
Sato, Kenjiro                      Hiroshima City University  
Fukui, Yuta                      Hiroshima City University

Iwaki, Satoshi                      Hiroshima City University  
Ikeda, Tetsushi                    Hiroshima City University

### **256 – Model Checking Human-Agent Collectives for Responsible AI**

Abeywickrama, Dhaminda                      University of Southampton  
Cirstea, Corina                                      University of Southampton  
Ramchurn, Sarvapali                                University of Southampton

### **168 – IoT Based Submersible ROV for Pisciculture**

Rohit, Mehboob Hasan                          North South University  
Barua, Sailanjan                                    North South University  
Akter, Irin    North South University  
Karim, S M Mujibul                                North South University  
Akter, Sharmin                                        North South University  
Elahi, M. M. Lutfu                                  North South University

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## **Regular Session 11: Social Robots III**

### **139, 146, 158, 187, 191, 259**

#### **139 – Teaching Pepper Robot to Recognize Emotions of Traumatic Brain Injured Patients Using Deep Neural Networks**

Ilyas, Chaudhary Muhammad                      Aalborg University  
Schmuck, Viktor                                      Aalborg University, Denmark  
Haque, Mohammad Ahsanul                        Aalborg University  
Nasrollahi, Kamal                                    Aalborg University  
Rehm, Matthias                                        Aalborg University  
Moeslund, Thomas B.                                Aalborg University

#### **146 – Mood Estimation As a Social Profile Predictor in an Autonomous, Multi-Session, Emotional Support Robot for Children**

Gamborino, Edwinn                                National Taiwan University  
Yueh, Hsiu-Ping                                    National Taiwan University  
Lin, Weijane     National Taiwan University  
Yeh, Su-Ling     National Taiwan University  
Fu, Li-Chen    National Taiwan University

#### **158 – Mapping Robotic Affordances with Pre-Requisite Learning Interventions for Children with Autism Spectrum Disorder**

Shukla, Jainendra                                  Indraprastha Institute of Information Technology, Delhi                      Suri,  
Venkata Ratnadeep                                Indraprastha Institute of Information Technology, Delhi  
Garg, Jatin    Indraprastha Institute of Information Technology Delhi

Verma, Krit                      Indraprastha Institute Of Information Technology Delhi  
Kansal, Prarthana              IIIT Delhi

**187 – Health Counseling by Robots: Modalities for Breastfeeding Promotion**

Murali, Prasanth              Khoury College of Computer Science  
O'Leary, Teresa              Khoury College of Computer and Information Science  
Shamekhi, Ameneh              Northeastern University  
Bickmore, Timothy              Northeastern University

**191 – Persuasive ChairBots: A (Mostly) Robot-Recruited Experiment**

Agnihotri, Abhijeet              Oregon State University  
Knight, Heather              Oregon State University

**259 – Robot-Assisted Therapy for Children with Delayed Speech Development: A Pilot Study**

Zhanatkyzy, Aida              Nazarbayev University  
Turarova, Aizada              Nazarbayev University  
Telisheva, Zhansaule              Nazarbayev University  
Abylkasymova, Galiya              Republican Children's Rehabilitation Center  
Sandygulova, Anara              Nazarbayev University

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**Regular Session 12: Visual Perception and Autonomous Robots**

**65, 96, 121, 140, 160, 173**

**65 – Grasping of Novel Objects for Robotic Pick and Place Applications**

Vohra, Mohit              Indian Institute of Technology, Kanpur  
Prakash, Ravi              Indian Institute of Technology, Kanpur  
Behera, Laxmidhar              Indian Institute of Technology, Kanpur

**96 – A Novel Image-based Path Planning Algorithm for Eye-in-Hand Visual Servoing of a Redundant Manipulator in a Human Centered Environment**

Raina, Deepak              TCS Robotics Innovation Lab  
P, Mithun              International Institute of Information Technology Hyderabad  
Shah, Suril Vijaykumar              Indian Institute of Technology Jodhpur  
Swagat, Kumar              Tata consultancy services

**121 – A Novel Geometry-Based Algorithm for Robust Grasping in Extreme Clutter Environment**

Kundu, Olyvia              TCS Innovation Labs  
Swagat, Kumar              Tata consultancy services

### **140 – Fatigue Estimation Using Facial Expression Features and Remote-PPG Signal**

Hasegawa, Masaki Toyohashi University of Technology  
Hayashi, Kotaro Toyohashi University of Technology  
Miura, Jun Toyohashi University of Technology

### **160 – Model & Feature Agnostic Eye-In-Hand Visual Servoing Using Deep Reinforcement Learning with Prioritized Experience Reply**

Singh, Perna Tata Consultancy Services  
Singh, Virender TCS  
Dutta, Samrat TCS Research and Innovation  
Swagat, Kumar Tata consultancy services

### **173 – Reasoning on Shared Visual Perspective to Improve Route Directions**

Waldhart, Jules LAAS-CNRS  
Clodic, Aurélie LAAS - CNRS  
Alami, Rachid CNRS

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## **Regular Session 13: Machine Learning and Adaptation**

### **155, 176, 190, 260, 209, 215**

### **155 – HiFI: A Hierarchical Framework for Incremental Learning Using Deep Feature Representation**

Raj, Ankita IIT Delhi  
Majumder, Anima Tata consultancy services  
Swagat, Kumar Tata consultancy services

### **176 – Reinforcement Learning Motion Planning for an EOG-Centered Robot Assisted Navigation in a Virtual Environment**

Garrote, Luís Carlos Institute of Systems and Robotics  
Perdiz, João University of Coimbra  
Pires, Gabriel University of Coimbra  
Nunes, Urbano J. Instituto de Sistemas e Robotica

### **190 – Identifying Multiple Interaction Events from Tactile Data During Robot-Human Object Transfer**

Davari, Mohammad-Javad Simon Fraser University  
Hegedus, Michael James Simon Fraser University  
Gupta, Kamal Simon Fraser University  
mehrandezh, mehran University of Regina

**260 – Accuracy Improvement of Facial Expression Recognition in Speech Acts: Confirmation of Effectiveness of Information Around a Mouth and GAN-Based Data Augmentation**

Song, KyuSeob                      Korea Advanced Institute of Science and Tech KAIST  
Kwon, Dong-Soo                      KAIST

**209 – An Empirical Study of Person Re-Identification with Attributes**

Shree, Vikram                      Cornell University  
Chao, Wei-Lun                      Cornell University  
Campbell, Mark                      Cornell University

**215 – Q-Learning Based Navigation of a Quadrotor Using Non-Singular Terminal Sliding Mode Control**

Yogi, Subhash Chand                      Indian Institute of Technology Kanpur  
Tripathi, Vibhu Kumar                      Indian Institute of Technology Kanpur  
Kamath, Archit Krishna                      Indian Institute of Technology Kanpur  
Behera, Laxmidhar                      Indian Institute of Technology Kanpur

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**Regular Session 14: Imitation Learning**

**152, 243, 245, 252, 266, 300**

**152 – SMAK-Net: Self Supervised Multi-Level Spatial Attention Network for Knowledge Representation towards Imitation Learning**

Ramachandrani, Kartik                      TCS Innovation Labs  
Vankadari, Madhu Babu                      TCS  
Majumder, Anima                      Tata consultancy services  
Dutta, Samrat                      TCS Research and Innovation  
Swagat, Kumar                      Tata consultancy services

**243 – Extending Policy from One-Shot Learning through Coaching**

Balakuntala Srinivasa Murthy, Mythra Varun                      Purdue University  
Venkatesh, L.N Vishnunandan                      Purdue University  
Padmakumar Bindu, Jyothsna                      Purdue University  
Voyles, Richard                      Purdue University  
Wachs, Juan                      Purdue University

**245 – DeepMoTion: Learning to Navigate Like Humans**

Hamandi, Mahmoud                      INSA Toulouse  
D'Arcy, Michael                      North-western University  
Fazli, Pooyan                      San Francisco State University

## **252 – Learning Active Spine Behaviors for Dynamic and Efficient Locomotion in Quadruped Robots**

Bhattacharya, Shounak	Indian Institute of Science
Singla, Abhik	Indian Institute of Science (IISc), Bangalore
Singh, Abhimanyu	BITS Pilani K K Birla Goa Campus
Dholakiya, Dhairvat	Indian Institute of Science
Bhatnagar, Shalabh	Indian Institute of Science, Bangalore
Amrutur, Bharadwaj	Indian Institute of Science
Ghosal, Ashitava	India Institute of Science (IISc)
Nadubettu Yadukumar, Shishir	Indian Institute of Science

## **266 – Trajectory based Deep Policy Search for Quadrupedal Walking**

Nadubettu Yadukumar, Shishir	Indian Institute of Science
Joglekar, Ashish	Indian Institute of Science
Shetty, Suhan	Indian Institute of Science
Dholakiya, Dhairvat	Indian Institute of Science
Singh, Abhimanyu	BITS Pilani K K Birla Goa Campus
Sagi, Aditya Varma	Indian Institute of Science
Bhattacharya, Shounak	Indian Institute of Science
Singla, Abhik	Indian Institute of Science, Bangalore
Bhatnagar, Shalabh	Indian Institute of Science, Bangalore
Ghosal, Ashitava	India Institute of Science (IISc)
Amrutur, Bharadwaj	Indian Institute of Science

## **300 - Natural Language Interface for Programming Sensory-Enabled Scenarios for Human-Robot Interaction**

Buchina, Nina	Eindhoven University of Techniligy
Sterkenburg, Paula	Free University of Amsterdam
Lourens, Tino	TiViPE
Barakova, Emilia I.	Eindhoven University of Technology

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## **Regular Session 15: Motion Planning, Navigation, and Control in Human Centered Environment**

### **264, 288, 148, 219, 171, 217**

## **264 – PIVO: Probabilistic Inverse Velocity Obstacle for Navigation under Uncertainty**

Poonganam, SriSai Naga Jyotish	IIIT Hyderabad
Goel, Yash	IIIT Hyderabad
Avula, Venkata Seetharama	IIIT Hyderabad
Sai Bhargav Kumar	IIIT Hyderabad
Krishna, Madhava	IIIT Hyderabad

### **288 – Trajectory Advancement during Human-Robot Collaboration**

Tirupachuri, Yeshasvi	Italian Institute of Technology
Nava, Gabriele	Italian Institute of Technology
Rapetti, Lorenzo	Italian Institute of Technology
Latella, Claudia	Italian Institute of Technology
Pucci, Daniele	Italian Institute of Technology

### **148 – Vision-Based Fast-Terminal Sliding Mode Super Twisting Controller for Autonomous Landing of a Quadrotor on a Static Platform**

Kamath, Archit Krishna	Indian Institute of Technology, Kanpur
Tripathi, Vibhu Kumar	Indian Institute of Technology, Kanpur
Yogi, Subhash Chand	Indian Institute of Technology, Kanpur
Behera, Laxmidhar	Indian Institute of Technology, Kanpur

### **219 – Vision-Based Fractional Order Sliding Mode Control for Autonomous Vehicle Tracking by a Quadrotor UAV**

Maurya, Heera Lal	Indian Institute of Technology, Kanpur
Kamath, Archit Krishna	Indian Institute of Technology, Kanpur
Behera, Laxmidhar	Indian Institute of Technology, Kanpur
Verma, Nishchal K.	Indian Institute of Technology, Kanpur

### **171 – End-User Programming of Low and High-Level Actions for Robotic Task Planning**

Liang, Ying Siu	University of Grenoble-Alpes
Pellier, Damien	Laboratory of Informatics Grenoble - CNRS
Fiorino, Humbert	University Grenoble Alpes laboratory of Informatics Grenoble
Pesty, Sylvie	University of Grenoble-Alps

### **217 – Human Perception of Gait Styles on a Compass Walker in Variable Contexts Via Descriptive versus Emotive Labels**

Lambert, Jacey	University of Illinois at Urbana-Champaign
Huzaifa, Umer	University of Illinois at Urbana-Champaign
Rizvi, Wali	University of Illinois at Urbana-Champaign
LaViers, Amy	University of Illinois at Urbana-Champaign

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## **Regular Session 16: Medical Robotics**

**30, 58, 123, 267, 179, 102**

### **30 – Master-Slave Guidewire and Catheter Robotic System for Cardiovascular Intervention**

Xiang, Yujia	Shanghai Jiao Tong University
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Shen, Hao                      Shanghai Jiao Tong University  
Xie, Le                         Shanghai Jiao Tong University  
Wang, Hesheng                Shanghai Jiao Tong University

**58 – A Brief Review of the Electronics, Control System Architecture, and Human Interface for Commercial Lower Limb Medical Exoskeletons Stabilized by Aid of Crutches**

Tabti, Nahla                    University of Paris Sud  
KARDOFAKI, Mohamad        UVSQ  
Alfayad, Samer                LISV,BIA  
Chitour, Yacine                University of Paris Sud  
Ben Ouezdou, Fathi            University of Versailles St. Quentin

**123 – Development of a Foldable Five-Finger Robotic Hand for Assisting Laparoscopic Surgery**

Anzai, Yuki                     Yokohama National University  
Sagara, Yuto                    Yokohama National University  
Kato, Ryu                        Yokohama National University  
Mukai, Masaya                 Tokai University

**267 – Effects of Flexible Surgery Robot on Endoscopic Procedure: Preliminary Bench-Top User Test**

Kim, Joonhwan                 Korea Advanced Institute of Science and Technology(KAIST)  
Hwang, Minho                 Korea Advanced Institute of Science and Technology (KAIST)  
Lee, Dong-Ho                 Korea Advanced Institute of Science and Technology  
Kim, Hansoul                 Korea Advanced Institute of Science and Technology  
Ahn, Jeongdo                 Korea Advanced Institute of Science and Technology  
You, Jae Min                 Korea Advanced Institute of Science and Technology  
Baek, DongHoon                KAIST  
Kwon, Dong-Soo                KAIST

**179 – Towards Securing the Sclera against Patient Involuntary Head Movement in Robotic Retinal Surgery**

Ebrahimi, Ali                    Johns Hopkins University  
Urias, Muller                    Wilmer Eye Institute  
He, Changyan                    Beihang University  
Patel, Niravkumar                Johns Hopkins University  
Taylor, Russell H.                Johns Hopkins University  
Gehlbach, Peter                 Johns Hopkins Medical Institute  
Iordachita, Ioan Iulian            Johns Hopkins University

**102 – Detecting Deception in HRI Using Minimally-Invasive and Noninvasive Techniques**

Iacob, David-Octavian            ENSTA-ParisTech



**Regular Session 17: Human Robot Collaboration and Cooperation**  
**138, 150, 151, 170, 207, 211****138 – Can a Humanoid Robot Be Part of the Organizational Workforce? a User Study Leveraging Sentiment Analysis**

Mishra, Nidhi	Nanyang Technological University
Ramanathan, Manoj	Nanyang Technological University
Satapathy, Ranjan	Nanyang Technological University
Cambria, Erik	Nanyang Technological University
Thalmann, Nadia Magnenat	Nanyang Technological University

**150 – A Multi Modal People Tracker for Real Time Human Robot Interaction**

Wengefeld, Tim	Ilmenau University of Technology
Mueller, Steffen	Ilmenau University of Technology
Lewandowski, Benjamin	Ilmenau University of Technology
Gross, Horst-Michael	Ilmenau University of Technology

**151 – Human Prediction for the Natural Instruction of Handovers in Human Robot Collaboration**

Lambrecht, Jens	Technical University of Berlin
Nimpsch, Sebastian	GESTALT Robotics GmbH

**170 – Evaluation of an Industrial Robotic Assistant in an Ecological Environment**

Busch, Baptiste	EPFL
Cotugno, Giuseppe	King's College London
Khoramshahi, Mahdi	EPFL
Skaltsas, Grigorios	University of Hertfordshire
Turchi, Dario	Ocado
Urbano, Leonardo	EPFL
Waechter, Mirko	Karlsruhe Institute of Technology (KIT)
Zhou, You	Karlsruhe Institute of Technology (KIT)
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
Deacon, Graham	OCADO - Robotics Research
Russell, Duncan	Ocado Technology
Billard, Aude	EPFL

**207 – Human Trust after Robot Mistakes: Study of the Effects of Different Forms of Robot Communication**

Ye, Sean	Georgia Institute of Technology
Neville, Glen	Georgia Institute of Technology

Schrump, Mariah	Georgia Institute of Technology
Gombolay, Matthew	Georgia Institute of Technology
Chernova, Sonia	Georgia Institute of Technology
Howard, Ayanna	Georgia Institute of Technology

### **211 – Path Planning through Tight Spaces for Payload Transportation Using Multiple Mobile Manipulators**

Tallamraju, Rahul	IIT Hyderabad
Sripada, Venkatesh	Oregon State University, Corvallis, USA
Shah, Suril Vijaykumar	Indian Institute of Technology Jodhpur

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## **Regular Session 18: Linguistic Communication and Dialogue**

**16, 40, 86, 97, 186, 25**

### **16 – Autonomous Generation of Robust and Focused Explanations for Robot Policies**

Struckmeier, Oliver	Aalto University
Racca, Mattia	Aalto University
Kyrki, Ville	Aalto University

### **40 – A Robots Expressive Language Affects Human Strategy and Perceptions in a Competitive Game**

Roth, Aaron M.	Carnegie Mellon University
Reig, Samantha	Carnegie Mellon University
Bhatt, Umang	Carnegie Mellon University
Shulgach, Jonathan	Carnegie Mellon University
Amin, Tamara	Independent
Doryab, Afsaneh	Carnegie Mellon University
Fang, Fei	Carnegie Mellon University
Veloso, Manuela	Carnegie Mellon University

### **86 – Walk the Talk! Exploring (Mis)Alignment of Words and Deeds by Robotic Teammates in a Public Goods Game**

Correia, Filipa	INESC-ID and Instituto Superior Técnico
Chandra, Shruti	INESC-ID and Instituto Superior Técnico
Mascarenhas, Samuel	INESC-ID / Instituto Superior Técnico
Charles-Nicolas, Julien	Técnico Lisboa
Gally, Justin Philippe Roger Luc	INSA Lyon
Lopes, Diana	Instituto Superior Técnico
Santos, Fernando P.	Princeton University
Santos, Francisco C.	IST, Universidade de Lisboa, Portugal
Melo, Francisco S.	Instituto Superior Técnico
Paiva, Ana	INESC-ID and Instituto Superior Técnico

### **97 – Your instruction may be crisp, but not clear to me!**

Pramanick, Pradip	TCS Research & Innovation
Sarkar, Chayan	TCS Research & Innovation
Bhattacharya, Indrajit	TCS Research & Innovation

### **186 – Building Language-Agnostic Grounded Language Learning Systems**

Kery, Caroline	University of Maryland, Baltimore County
Pillai, Nisha	UMBC
Matuszek, Cynthia	University of Maryland, Baltimore County
Ferraro, Francis	University of Maryland Baltimore County

### **25 – Let Me Show You Your New Home: Studying the Effect of Proxemic-Awareness of Robots on Users' First Impressions**

Petrak, Björn	Augsburg University
Weitz, Katharina	Augsburg University
Aslan, Ilhan	Augsburg University
Andre, Elisabeth	Augsburg University

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## **Regular Session 19: Robot Companions**

**115, 231, 240, 17, 194, 27**

### **115 – An Adaptive Robot Teacher Boosts a Human Partner's Learning Performance in Joint Action**

Vignolo, Alessia	Istituto Italiano di Tecnologia
Powell, Henry	University of Glasgow
McEllin, Luke	Central European University
Rea, Francesco	Istituto Italiano di Tecnologia
Sciutti, Alessandra	Italian Institute of Technology
Michael, John	Central European University

### **231 – On the Role of Trust in Child-Robot Interaction**

Zguda, Paulina	Jagiellonian University
Kolota, Anna	Jagiellonian University
Jarosz, Mateusz	AGH University of Science and Technology
Sondej, Filip	AGH University of Science and Technology
Izui, Takamune	Tokyo University of Agriculture and Technology
Dziok, Maria	AGH University of Science and Technology
Belowska, Anna	AGH University of Science and Technology
Wojciech Jędras	AGH University of Science
Venture, Gentiane	Tokyo University of Agriculture and Technology

Sniezynski, Bartlomiej      AGH University of Science and Technology  
Indurkhya, Bipin              Jagiellonian University

**240 – An Exploratory Study on Proxemics Preferences of Humans in Accordance with Attributes of Service Robots**

Samarakoon, Bhagya          University of Moratuwa  
Muthugala Arachchige        Singapore University of Technology and Design  
Viraj Jagathpriya Muthugala   Singapore University of Technology and Design  
Jayasekara, A.G.B.P.          University of Moratuwa  
Elara, Mohan Rajesh          Singapore University of Technology and Design

**17 – Augmented Reality as a Medium for Human-Robot Collaborative Tasks**

Chacko, Sonia                  NYU Tandon School of Engineering  
Kapila, Vikram                 NYU Tandon School of Engineering

**194 – Designing a Socially Assistive Robot for Long-Term In-Home Use for Children with Autism Spectrum Disorders**

Pakkar, Roxanna              University of Southern California  
Clabaugh, Caitlyn             University of Southern California  
Lee, Rhianna                  University of Southern California  
Deng, Eric                      University of Southern California  
Mataric, Maja                 University of Southern California

**27 – Proof of Concept of a Projection-Based Safety System for Human-Robot Collaborative Engine Assembly**

Hietanen, Antti Eerikki        Tampere University of Technology  
Changizi, Alireza                Tampere University of Technology  
Lanz, Minna                      Tampere University of Technology  
Kamarainen, Joni-Kristian      Tampere University of Technology  
GANGULY, PALLAB                Tampere University  
Pieters, Roel S.                 Tampere University  
Latokartano, Jyrki Matias        Tampere University of Technology

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**Regular Session 20: Therapy and Rehabilitation**

**246, 270, 253, 67, 153, 293**

**246 – Linear Parameter-Varying Identification of the EMG–Force Relationship of the Human Arm**

PESENTI, Mattia                Politecnico di Mil  
ALKHOURY, Ziad                University of Strasbourg  
BEDNARCZYK, Maciej          University of Strasbourg  
OMRAN, Hassan                 University of Strasbourg

Bayle, Bernard

University of Strasbourg

**270 – Co-Designing and Field-Testing Adaptable Robots for Triggering Positive Social Interactions for Adolescents with Cerebral Palsy**

Mariager, Casper Sloth      Aalborg University  
Fischer, Daniel K. B.      Aalborg University  
Kristiansen, Jakob      Aalborg University  
Rehm, Matthias      Aalborg University

**253 – Socially Assistive Robot's Behaviors Using Microservices**

Ercolano, Giovanni      University of Naples Federico II  
Lambiase, Paolo D.      University of Naples Federico II  
Leone, Enrico      University of Naples "Federico II  
Raggioli, Luca      University of Naples Federico II  
Trepiccione, Davide      University of Naples Federico II  
Rossi, Silvia      University of Naples Federico II

**67 – A Robot-Mediated Assessment of Tinetti Balance scale for Sarcopenia Evaluation in Frail Elderly**

Fiorini, Laura      The BioRobotics Institute, Scuola Superiore Sant'Anna  
D'Onofrio, Grazia      Complex Unit of Geriatrics, IRC  
Rovini, Erika      Scuola Superiore Sant'Anna, Pisa  
Sorrentino, Alessandra      Scuola Superiore Sant'Anna  
Coviello, Luigi      Scuola Superiore Sant'Anna  
Limosani, Raffaele      Scuola Superiore Sant'Anna  
Sancarlo, Daniele      Complex Unit of Geriatrics, IRC  
Cavallo, Filippo      Scuola Superiore Sant'Anna – Pisa

**153 – Stakeholders Acceptance and Expectations of Robot-Assisted Therapy for Children with Autism Spectrum Disorder**

Oliver, Joan      Instituto de Robótica para la Dependencia  
Oliván, Rebeca      Instituto de Robótica para la Dependencia  
Shukla, Jainendra      Indraprastha Institute of Information Technology, Delhi  
Folch, Annabel      Intellectual Disability and Developmental Disorders Research Uni  
Martínez-Leal, Rafael      Intellectual Disability and Developmental Disorders Research Uni  
Castellà, Mireia      Intellectual Disability and Developmental Disorders Research Uni  
Puig, Domenec      Rovira i Virgili University

**293 – SHEBA: A Low-Cost Assistive Robot for Older Adults in the Developing World**

Motahar, Tamanna      North South University  
Farden, Fahim      North South University  
Sarkar, Dibya Prokash      North South University  
Islam, Atiqul      North South University

Cabrera, Maria Eugenia      University of Washington  
Cakmak, Maya                University of Washington

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## **Poster Session 16 October 2019 13:30-15:30**

### **55 Papers**

#### **81 – Learning by Collaborative Teaching : An Engaging Multi-Party CoWriter Activity**

El Hamamsy, Laila      EPFL  
JOHAL, Wafa            EPFL  
asselborn, thibault    EPFL  
Nasir, Jauwairia        EPFL  
Dillenbourg, Pierre    EPFL

#### **82 – Trajectory Optimization of Continuum Arm Robots**

Yadav, Ritesh            BITS Pilani  
Rout, Bijay Kumar      Birla Institute of Technology and Science, Pilani, India

#### **1 - Playful Interaction with Humanoid Robots for Social Development in Autistic Children: A Pilot Study**

Cervera, Enric            Jaume-I University  
del Pobil, Angel P.      Jaume-I University  
Cabezudo, Maria-Isabel   Hospital de Manises

#### **309 - Formulating User Requirements for Designing Collaborative Robots**

Macovetchi, Ana Maria      Blue Ocean Robotics  
Shahabeddini Parizi, Mohammad   Blue Ocean Robotics  
Kirstein, Franziska        Blue Ocean Robotics

#### **15 - Dark-Room Exchange: Human Supervision of Decentralized Multi-Robot Systems Using Distributed Ledgers and Network Mapping**

Krishnamoorthy, Sai-Prasanth      NYU Tandon School of Engineering  
Go, Albert                Massachusetts Institute of Technology  
Tiwari, Ashlee            Indian Institute of Technology, Kanpur  
Kapila, Vikram            NYU Tandon School of Engineering

#### **29 - Communicating with SanTO the First Catholic Robot**

Trovato, Gabriele        Waseda University  
Pariasca, Franco        Pontificia Universidad Catolica del Peru  
Ramirez, Renzo        Pontificia Universidad Católica del Perú  
Cerna, Javier            Pontificia Universidad Catolica del Peru  
Reutskiy, Vadim        Innopolis University  
Rodriguez, Laureano    Pontificia Universidad Católica del Perú

Cuellar, Francisco Pontificia Universidad Catolica del Peru

### **37 - Quantitative Evaluation of Clothing Assistance Using Whole-Body Robotic Simulator of the Elderly**

Joshi, Ravi Prakash Graduate School of Life Science and Systems Engineering, Kyushu  
Shibata, Tomohiro Kyushu institute of technology  
Ogata, Kunihiro National Institute of Advanced Industrial Science and Technology  
Matsumoto, Yoshio AIST

### **42 - Impression Change on Nonverbal Non-Humanoid Robot by Interaction with Humanoid Robot**

Ueno, Azumi Tokyo University of Agriculture and Technology  
Mizuuchi, Ikuo Tokyo University of Agriculture and Technology  
Hayashi, Kotaro Toyohashi University of Technology

### **43 - MobiKa - Low-Cost Mobile Robot for Human-Robot Interaction**

Graf, Florenz Fraunhofer IPA  
Odabasi, cagatay Fraunhofer IPA  
Jacobs, Theo Fraunhofer IPA  
Graf, Birgit Fraunhofer IPA  
Födisch, Thomas BruderhausDiakonie

### **59 - Design and Evaluation of Expressive Turn-Taking Hardware for a Tele-presence Robot**

Fitter, Naomi T. University of Southern California  
Joung, Youngseok University of Southern California  
Demeter, Marton University of Southern California  
Hu, Zijian University of Southern California  
Mataric, Maja University of Southern California

### **98 – Study of Empathy on Robot Expression Based on Emotion Estimated from Facial Expression and Biological Signals**

Sripian, Peeraya Shibaura Institute of Technology  
Kurono, Yuya Shibaura Institute of Technology  
Yoshida, Reiji Shibaura Institute of Technology  
Sugaya, Midori Shibaura Institute of Technology

### **76 - Does a Friendly Robot Make You Feel Better?**

Ruijten, Peter Eindhoven University of Technology  
Cuijpers, Raymond Eindhoven University of Technology

### **83 - Brand Recognition with Partial Visible Image in the Bottle Random Picking Task Based on Inception V3**

ZHU, Chen Waseda University

Matsumaru, Takafumi      Waseda University

### **103 - A Conditional Adversarial Network for Scene Flow Estimation**

Thakur, Ravi Kumar    Indian Institute of Information Technology Sri City, Chittoor  
Mukherjee, Snehasis    Indian Institute of Information Technology Sri City, Chittoor

### **105 - Evaluating Imitation of Human Eye Contact and Blinking Behavior using an Android for Human-like Communication**

Tetsuya, Sano      Nara Institute of Science and Technology  
Yuguchi, Akishige    Nara Institute of Science and Technology  
Garcia Ricardez, Gustavo Alfonso    Nara Institute of Science and Technology (NAIST)  
Takamatsu, Jun      Nara Institute of Science and Technology  
Nakazawa, Atsushi    Kyoto University  
Ogasawara, Tsukasa    Nara Institute of Science and Technology

### **110- Deep-Pack: A Vision-Based 2D Online Bin Packing Algorithm with Deep Reinforcement Learning**

Kundu, Olyvia      TCS Innovation Labs  
Dutta, Samrat      TCS Research and Innovation  
Swagat, Kumar      Tata consultancy services

### **117 - Collaborative Transportation of Cable-Suspended Payload Using Two Quadcopter with Human in the Loop**

Prajapati, Pratik      Indian Institute of Technology Gandhinagar  
Parekh, Sagar      Institute of Technology, Nirma University  
Vashista, Vineet      Indian Institute of Technology Gandhinagar

### **118    Effective Human-Robot Collaboration in Near Symmetry Collision Scenarios**

Da Silva Filho, José Grimaldo      University Grenoble Alpes - INRIA  
Olivier, Anne-Hélène      University Rennes, M2S Lab, Inria, MimeTIC  
Crétual, Armel      M2S Lab, University Rennes 2  
Pette, Julien      INRIA - IRISA  
Fraichard, Thierry      INRIA

### **119 - Establishing Human-Robot Trust through Music-Driven Robotic Emotion Prosody and Gesture**

Savery, Richard      Georgia Inst. of Technology  
Weinberg, Gil      Georgia Inst. of Technology  
Rose, Ryan      Georgia Inst. of Technology

### **124 - Effectiveness of Robot Communication Level on Likeability, Understandability and Comfortability**

Chatterji, Nupur      Georgia Institute of Technology  
Allen, Courtney      Georgia Institute of Technology



Chernova, Sonia      Georgia Institute of Technology

**136 - Trip Recommendation Robot Agent**

Matsui, Tetsuya      Seikei university  
Yamada, Seiji      National Institute of Informatics

**142 - Tracking Control Incorporating Friction Estimation of a Cleaning Robot with a Scrubbing Brush**

Nemoto, Takuma      Singapore University of Technology and Design  
Mohan, Rajesh Elara      Singapore University of Technology and Design

**147 - Evaluation of Robots That Signals a Pedestrian Using Face Orientation Based on Moving Trajectory Analysis**

Yamashita, Shohei      Hiroshima City University  
Ikeda, Tetsushi      Hiroshima City University  
Shinozawa, Kazuhiko      Advanced Telecommunications Research Institute  
Iwaki, Satoshi      Hiroshima City University

**154 - Augmented Robotics for Learners: A Case Study on Optics**

JOHAL, Wafa      EPFL  
Robu, Olguta      EPFL  
Dame, Amaury      Oxford University  
Magnenat, Stéphane      EPFL  
Mondada, Francesco      EPFL

**174 - Incremental Estimation of Users Expertise Level**

Carreno, Pamela      University of Waterloo  
Dahiya, Abhinav      University of Waterloo  
Smith, Stephen L.      University of Waterloo  
Kulic, Dana      University of Waterloo

**177 - Autonomous Chess Playing Robot**

Nath, Prasanmit      NIT Rourkela  
Rath, Prabin Kumar      NIT Rourkela  
Mahapatro, Neelam      NIT Rourkela

**185 - Human-Robot Team: Effects of Communication in Analyzing Trust**

Ciocirlan, Stefan-Dan      University Politehnica of Bucharest  
Agrigoroaie, Roxana      ENSTA-ParisTech  
Tapus, Adriana      ENSTA-ParisTech

**197 - Probabilistic Obstacle Avoidance and Object Following: An Overlap of Gaussians Approach**

Bhatt, Dhairav      IIIT-Hyderabad

Garg, Akash Delhi Technological University  
GOPALAKRISHNAN, BHARATH IIIT HYDERABAD  
Krishna, Madhava IIIT Hyderabad

**199 - Improving Robot Tutoring Interactions through Help-Seeking Behaviors**

Jordan, Kristin University of Southern California  
Pakkar, Roxanna University of Southern California  
Mataric, Maja University of Southern California

**201 - Coupling of Arm Movements during Human-Robot Interaction: The Handover Case**

Ferreira Duarte, Nuno Instituto Superior Técnico, Lisbon  
Rakovic, Mirko University of Novi Sad, Faculty of Technical Sciences  
Santos-Victor, José Instituto Superior Técnico – Lisbon

**208 - Towards Situational Awareness from Robotic Group Motion**

Levillain, Florent Ensadlab-Reflective Interaction  
St-Onge, David Ecole de Technologie Supérieure  
Beltrame, Giovanni Ecole Polytechnique de Montreal  
Zibetti, Elisabetta CHART-LUTIN

**216 - Analysis of Factors Influencing the Impression of Speaker Individuality in Android Robots**

Mikata, Ryusuke ATR  
Ishi, Carlos Toshinori ATR  
Minato, Takashi ATR  
Ishiguro, Hiroshi Osaka University

**225 - Synthesizing Unnatural Grasping in Humanoid Robots Using Fuzzy Logic**

Dayal, Udai, Arun Birla Institute of Technology  
Biswas, Shiladitya Birla Institute of Technology  
Penisetty, Sree Aslesh Birla Institute of Technology, Mesra, Ranchi

**230 - Classroom Group Formation Model Based on Socion Theory Considering Communication in Social Networking Services**

Naito, Kosuke Nagoya Institute of Technology  
Kato, Shohei Nagoya Institute of Technology

**232 - Design of an Integrated Gripper with a Suction System for Grasping in Cluttered Environment**

Kang, Long Hanyang University  
Seo, Jong-Tae Hanyang University  
Kim, Sang-Hwa Hanyang University  
Yi, Byung-Ju Hanyang University

### **234 - A Robust Position Estimation Algorithm under Unusual Large Range Errors**

Kim, Moonki	Korean Institute of Science and Technology
Lee, Ji Yang	Korean Institute of Science and Technology
Kim, Jung-Hee	Korea Institute of Science and Technology
Hassen, Nigatu	Korean Institute of Science and Technology
Kim, Doik	KIST

### **236 - Factors Influencing the Human Preferred Interaction Distance**

Rajamohan, vineeth	University of Nevada, Reno
Scully-allison, connor	University of Nevada, Reno
Dascalu, sergiu	University of Nevada, Reno
Feil-Seifer, David	University of Nevada, Reno

### **241 - Perception of Social Intelligence in Robots Performing False-Belief Tasks**

Sturgeon, Stephanie	University of Nevada, Reno
Palmer, Andrew	University of Nevada, Reno
Blankenburg, Janelle	University of Nevada, Reno
Feil-Seifer, David	University of Nevada, Reno

### **247 - Dynamic Calibration between a Mobile Robot and SLAM Device for Navigation**

Ishikawa, Ryoichi	The University of Tokyo
Oishi, Takeshi	The University of Tokyo
Ikeuchi, Katsushi	Microsoft

### **282 - Development of a Teach Pendant for Humanoid Robotics with Cartesian and Joint-Space Control Modalities**

Otarbay, Zhenis	Nazarbayev University
Assylgali, Iliyas	Nazarbayev University
Yskak, Asset	Nazarbayev University
Folgheraiter, Michele	Nazarbayev University

### **289 - Influencing Hand-Washing Behavior with a Social Robot: HRI Study with School Children in Rural India**

Deshmukh, Amol	University of Glasgow
K Babu, Sooraj	AMMACHI Labs, Amrita Vishwa Vidyapeetham, Amritapuri, India
Radhakrishnan, Unnikrishnan	Amrita University
Ramesh, Shanker	AMMACHI Labs, Amrita Vishwa Vidyapeetham, Amritapuri, India
A, Parameswari	Ammachi labs, Amrita Vishwa Vidyapeetham, Amritapuri, India
Rao R, Bhavani	Amrita Vishwa vidyapeetham University

### **305 - Aggressive Bee: A New Vision for Missile Guidance Applications**

Jada, Chakravarthi	RGUKT-NUZVID
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Urlana, Ashok           RGUKT-NUZVID  
Baswani, Pavan        RGUKT-NUZVID  
Shaik, Gouse Basha   RGUKT-NUZVID

### **306 - Chasing and Aiming of a Moving Target**

Agarwal, Suryansh        IIT Kanpur  
Hanchinal, Suraj Veerabhadra    IIT Kanpur  
Chaudhary, Ashok Kumar   IIT Kanpur  
Behera, Laxmidhar        IIT Kanpur

### **307 - Investigations on Gesture Holding Durations at Speech Interruptions in Dialogue Robots**

Ishi, Carlos Toshinori        ATR  
Mikata, Ryusuke            ATR  
Minato, Takashi            ATR  
Ishiguro, Hiroshi           Osaka University

### **308 – Human-Robot Handovers with Signal Temporal Logic Specifications**

Kshirsagar, Alap        Cornell University  
Kress-Gazit, Hadas    Cornell University  
Hoffman, Guy            Cornell University

### **310 – Development and Performance Evaluation of Onboard Auto-Pilot System for an Aerial Vehicle**

Kumar, Abhinay            IIT Jodhpur  
Comandur, Venkatesan    IIT-Jodhpur

### **312 – A Body Contact-Driven Pupil Response Pet-Robot for Enhancing Familiarity**

Sejima, Yoshihiro        Kansai University  
Kawamoto, Hiroki        Okayama Prefectural University  
Sato, Yoichiro            Okayama Prefectural University  
Watanabe, Tomio        Okayama Prefectural University

### **313 – Development of a Finger Rehabilitation System Considering Motion Sense and Vision Based on Mirror Therapy**

Ota, Shunsuke            University of Toyama  
JINDAI, Mitsuru        University of Toyama  
Yasuda, Toshiyuki       University of Toyama

### **314 - Extended Hybrid Code Network for Hospital Receptionist Robot**

Hwang, Eui Jun           The University of Auckland  
Ahn, Byeong-Kyu        Sungkyunkwan University  
MacDonald, Bruce        University of Auckland  
Ahn, Ho Seok            The University of Auckland, Auckland

### **315 – Investigating the Understandability and Efficiency of Directional Cues in Robot Navigation**

Neggers, Margot      Eindhoven University of Technology  
Ruijten, Peter      Eindhoven University of Technology  
Cuijpers, Raymond      Eindhoven University of Technology  
IJsselsteijn, Wijnand      Eindhoven University of Technology

### **316 - Multi-Robot Formation Control Using Reinforcement Learning**

Rawat, Abhay      International Institute of Information Technology, Hyderabad  
Karlalalem, Kamalakar      IIIT-Hyderabad

### **317 – A Pilot Study for a Robot-Mediated Listening Comprehension Intervention for Children with ASD**

Louie, Wing-Yue Geoffrey      Oakland University  
ABBAS, Ibrahim      Oakland University  
Korneder, Jessica      Oakland University

### **318 – Contextual Non-Verbal Behaviour Generation for Humanoid Robot Using Text Sentiment**

Deshmukh, Amol      University of Glasgow  
Foster, Mary Ellen      University of Glasgow  
Mazel, Alexandre      Aldebaran-Robotics

### **319 - Towards Automatic Synthesis and Instantiation of Proactive Behavior**

Buyukgoz, Sera      Soft-Bank Robotics Europe, Sorbonne University  
Chetouani, Mohamed      Sorbonne University  
Pandey, Amit Kumar      Hanson Robotics

### **320 - An Agent Model Introducing Interpersonal Sentiments for Enhancement of Friendliness**

Fukuta, Kazuaki      Nagoya Institute of Technology  
Kato, Shohei      Nagoya Institute of Technology

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