Preface

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For this regular issue, we are honored to introduce a collection of ten papers which cover a broad range of exciting topics in social robotics.

In the first paper on “An Indoor Navigation Service Robot System Based on Vibration Tactile Feedback” by Huang Peng, Guangming Song, Jian You, Ying Zhang, Jie Lian, authors design an indoor navigation robot based on vibration tactile feedback to help visually impaired people. The vibration tactile feedback provides a new mode of human–robot interaction. During the experiments, the user is free to decide his or her pace, and the robot is able to adapt to users. The proposed system is claimed to outperform user-friendly and less intrusive, in terms of relatively short training time.

In the second work on “Evaluating the Child–Robot Interaction of the NAOTherapist Platform in Pediatric Rehabilitation” by José Carlos Pulido, José Carlos González, Cristina Suárez-Mejías, Antonio Bandera, Pablo Bustos and Fernando Fernández, the authors describe the interaction mechanisms that are necessary to supervise and help the patient to carry out the prescribed exercises correctly. They also provide an evaluation focused on the child–robot interaction of the robotic platform with a large number of schoolchildren and the experience of a first contact with three pediatric rehabilitation patients. Based on questionnaires,

video analysis and system logs, the results have proven to be consistent with the hypotheses proposed.

In the third paper, “The Effects of Organism-Versus Object-Based Robot Design Approaches on the Consumer Acceptance of Domestic Robots” (by Sonya S. Kwak, Jun San Kim, and Jung Ju Choi) investigates the effects of domestic robot design approaches in terms of consumer acceptance. They provide a prediction that object-based robot design will be more effective for consumer’s evaluation of and intent to purchase domestic robots than organism-based robot design. Besides, it is possible that the categorization of robots will mediate the effects of robot design approaches on the evaluation.

In the fourth paper on “Non-human Looking Robot Arms Induce Illusion of Embodiment” by Laura Aymerich-Franch, Damien Petit, Gowrishankar Ganesh, and Abderrahmane Kheddar, some experiments are carried out for non-human looking humanoid robot arms. The results show that humans can experience a strong sense of embodiment towards non-human looking robot arms. Also, the results have important implications in the domain of robotics which demonstrate that humans can embody highly-human resembling robotic and android limbs.

In the fifth paper, “Automated Prediction of Extraversion During Human–Humanoid Interaction” (by Salvatore Maria Anzalone, Giovanna Varni, Serena Ivaldi, and Mohamed Chetouani) addresses the automated prediction of personality traits from the dynamics of interpersonal interaction with social robots. A set of nonverbal features are proposed to model such dynamics and the results are obtained by training a classifier with these features that indicate the Extraversion prediction is improved. It is shown that a higher accuracy is obtained from the model by combining the dynamics of interpersonal interaction and the attitude of the participants towards the robots.

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The sixth paper “Case Report: Implications of Doing Research on Socially Assistive Robots in Real Homes” (by Susanne Frennert, Håkan Efring, and Britt Östlund) addresses the implications of doing research on socially assistive robots in real homes. Besides laboratory studies, this paper is an effort to provide a report on a specific empirical case and converging findings from other studies. The goal of the research is to provide an account of the research challenges and opportunities encountered when introducing a robot into its intended practice: the homes of older people.

The seventh work “A Long-Term Autonomous Robot at a Care Hospital: A Mixed Methods Study on Social Acceptance and Experiences of Staff and Older Adults” (by Denise Hebesberger, Tobias Koertner, Christoph Gisinger, Jürgen Pripfl) focuses on the evaluation of a long-term autonomous robot that was developed in a real-world scenario at a care facility for older adults with severe multimorbidity and dementia. It is showed that although there is a space for enhancement, staff and older adults were interested in and excited about the robot.

In the eighth paper on “How a Minimally Designed Robot can Help Implicitly Maintain the Communication Protocol” by Khaoula Youssef, and Michio Okada, the authors focus on the difference between the user’s retained mental

model and the robot’s previously taught instructions by the user. A feedback strategy is proposed to trigger an increased remembrance of the previously established communication protocol, which can avoid time wastage and task achievement failure.

The ninth paper, “Fear of Autonomous Robots and Artificial Intelligence: Evidence from National Representative Data with Probability Sampling” (by Yuhua Liang, and Seungcheol Austin Lee) focuses on a specific form of sociological fear, named as fear of autonomous robots and artificial intelligence (FARAI), which maybe serve to affect how people respond to and interact with robots. Data from a nationally representative dataset with probability sampling ($N = 1541$) are studied. The result indicates that FARAI is associated with other types of fear including loneliness, becoming unemployed, and drone use.

In the last paper “High-Speed Object Tracking with Its Application in Golf Playing” by Congyi Lyu, Yunhui Liu, Xin Jiang, Peng Li, Haoyao Chen, a high-speed object tracking system is proposed for tracking golf balls up to 200 km/h. The motion blurring feature is considered as a feature of the high-speed object. The proposed system achieves real-time tracking and could be migrated to other applications such as tennis.