Editorial

Shuzhi Sam Ge · Maja J. Matarić · Thomas Bräunl

Published online: 20 July 2011
© Springer Science & Business Media BV 2011

On behalf of the Editorial Board, we are pleased to present the third issue of International Journal of Social Robotics for 2011. The journal has been receiving increasing attention. So far, we have published a total of 94 articles. According to the statistics of the full-text downloads, 21% of the requests came from North America, 31% from Europe, and 33% from the Asia-Pacific area, where the top 5 requesting countries are China, Japan, India, Singapore and Australia.

The contributions in the current issue are on the theories and applications of social robots, covering the topics of emotion, human feature understanding, human-robot interaction, as well as social effects of human behaviors and response.

Overview of the papers in this issue:

In the first paper, titled “A complex time-varying affective software architecture”, by Lilia Moshkina, Sunghyun Park, Ronald C. Arkin, Jamee K. Lee, and HyunRyong Jung, an

architecture is designed by expanding the TAME architecture (Traits, Attitudes, Moods, and Emotions). As social robots become more popular in everyday lives, it is of vital importance for them to behave and communicate in an understandable and social manner. The affective architecture proposed in the paper can generate expressive behaviors to facilitate human-robot interaction, particularly for long-term use of humanoid robots.

The second paper, titled “How humans optimize their interaction with the environment: the impact of action context on human perception”, and authored by Agnieszka Wykowska, Alexis Maldonado, Michael Beetz and Anna Schubö, presents the empirical findings of the way action context influences perception in scheming actions. The experiments consist of a visual searching task and an action of grasping or moving and the results show that the speed of reaction is influenced by action context. This discovery can improve interface design by recommending a close bidirectional link between action and perception.

In the third paper, on “Determination of Age and Gender Based on Features of Human Motion Using AdaBoost Algorithms”, by S. Handri, S. Nomura and K. Nakamura, the problem of human identification is addressed by analyzing walking behaviors. An adaptive boost algorithm is performed to classify human age and gender after foreground and background separation and shape-width analysis. The proposed system is shown to accurately classify gender and age accurately.

The fourth paper, on “How long is a moment: The perception and reality of task-related absences” by William G. Kennedy and J. Gregory Trafton, investigates actual and perceived human performance in a simple task as prior knowledge in design of human-robot interaction. Parameters were determined for a trapezoidal model of walking and data of human evaluation of the accomplishment were collected.

S. Sam Ge (✉)
Social Robotics Laboratory, Interactive Digital Media Institute
and the Department of Electrical and Computer Engineering,
National University of Singapore, Singapore, Singapore
e-mail: samge@nus.edu.sg

S. Sam Ge
The Robotics Institute, University of Electronic Science
and Technology of China, Chengdu, China

M.J. Matarić
Computer Science Department, University of Southern
California, Los Angeles, USA

T. Bräunl
Robotics & Automation Lab, The University of Western
Australia, Crawley, Australia

The results reveal that people can estimate the duration of short tasks but underestimate the duration of long ones.

The fifth paper is authored by Rie Tamagawa, Catherine I Watson, I Han Kuo, Bruce A MacDonald, and Elizabeth Broadbent and titled “The effects of synthesized voice accents on user perceptions of robots”. The voice accent can influence the listeners’ perception of the speaker; a well-designed accent is important for a good human-robot interaction. Scripts repeated in three different accents are rated by the subjects according to the nationality, roboticness, and overall impression. The experimental results suggest that the employment of a less robotic voice with a local accent may positively affect user perceptions of robots.

The sixth article, on “The Social Role of Robots in the Future—Explorative Measurement of Hopes & Fears”, is authored by Sibylle Enz, Martin Diruf, Caroline Spielhagen, Carsten Zoll, and Patricia A. Vargas. They conduct a survey of people’s hopes and objections associated with the potential roles of social robots. The questionnaire results show that affective judgments of these roles are negative and the outcome has a tight relationship with characteristics of the respective social role and characteristics of the responding participants.

The seventh paper, on “Towards Social Robots: Designing an Emotion-based Architecture”, is authored by Jochen Hirth, Norbert Schmitz, and Karsten Berns. Emotion and expression are important features of social robots. In this paper, an emotion-based architecture is presented, comprising five emotion functions: regulative function, selective function, expressive function, motivational function, and rating function. The developed architecture is evaluated on the humanoid robot ROMAN and shows good performance.

The eighth paper, on “Mental schemas of robots as more human-like are associated with higher blood pressure and negative emotions in a human-robot interaction”, by Elizabeth Broadbent, Yong I Lee, Rebecca Q Stafford, I Han Kuo, and Bruce A MacDonald reveals whether people’s mental schemas about robots’ humanness are related to their reactions to social robots. Participants are first requested to

draw their ideas of a healthcare robot and then introduced to a robot. During this process, their blood pressure and emotions are measured and compared. Based on the experimental data, the authors conclude that people who hold the mental schema that robots are human-like may experience heightened arousal and negative emotions in interactions with robots.

The ninth paper, on “Problems and issues for service robots in new applications”, authored by Marco Ceccarelli, discusses the main aspects and challenges in using robots in new areas of applications. Two applications of robots are discussed: in restoration activity of historical goods and for physiotherapy rehabilitation. The discussion may facilitate developing service robots for a successful acceptance and use.

The final paper, by Derek McColl, Zhe Zhang, Goldie Nejat, is on “Human Body Pose Interpretation and Classification for Social Human-Robot Interaction”. The authors present a unique non-contact and non-restricting automated sensor-based approach for identification and categorization of human upper body language, an important feature of intelligent socially assistive robots. The proposed technique can be integrated into socially assistive robotic systems partaking in HRI scenarios.

This issue presents a wide range of research efforts in social robotics, human-robot interaction, perception, understanding, and suitable engineering and scientific solutions for specific problems in these areas. We would like to express our gratitude to editors, reviewers, and the publisher for their support and help, invaluable for the success of this issue.

This issue is possible thanks to Associate Editor Thomas Bräunl and his active outreach in recruiting relevant papers, and for his time and effort in the guest co-editor capacity.

S. Sam Ge, Editor-in-Chief
M.J. Matarić, Co-Editor-in-Chief
T. Bräunl, Guest Co-Editor