Human-Robot Interactions

Sangseok You
HEC Paris
you@hec.fr

Lionel P. Robert Jr.
University of Michigan
lprobert@umich.edu

Robots are increasingly being adopted in private and public spaces, leading to a proliferation of human–robot interactions in the home, workplace, and other public settings. Robots in the home are performing household chores and acting as home companions and home health care providers. Robots at work are fulfilling traditional human roles in logistics, transportation, and manufacturing, serving as both co-workers and supervisors. Robots are also being utilized as tour guides, janitors, and security officers in public spaces such as museums and airports. Although these interactions are often collaborative, they are by no means always cooperative.

Robot interactions with humans across this array of roles and settings pose interesting questions to scholars in various fields such as information systems, robotics, psychology, and sociology. Interaction with robots is distinct from that with other artificial intelligence (AI)-enabled technologies in that robots have a physical body that allows them to manifest physical actions. People cannot only talk to robots but also touch and be touched by robots. This distinguishes interactions with robots from interactions with disembodied AI agents, such as voice agents like Siri by Apple and Alexa by Amazon. Thus, research on human–robot interaction can differ significantly from that of human interaction with disembodied AI agents.

Given the importance of the topic, this mini-track presents studies that address various issues in human–robot interactions. This mini-track focuses on, but not limited to, the issues below:

1. Promoting cooperative and collaborative interaction with robots
2. Examining uncooperative and adversarial human interactions with robots
3. The role of adoption and appropriation in human–robot interactions
4. Empirical studies examining the cognitive, psychological, emotional, and social aspects of human–robot interactions
5. Social-emotional models of human–robot interaction
6. Theoretical frameworks for human–robot interaction
7. Case studies of human–robot interaction
8. Design implications for robot interactions at home, work and public spaces
9. Human-oriented practices that promote human–robot interactions
10. New methodological approaches to studying human–robot interactions
11. Technical enhancement of robots to improve human-robot interaction

In the inaugural year of this mini-track, we finally accepted and presented four papers that explore a variety of essential issues in human-robot interaction. The first paper, "Human-Machine Interaction and Human Resource Management Perspective for Collaborative Robotics Implementation and Adoption," proposed a conceptual framework to integrate human resources management practices and human-robot collaboration for the implementation of collaborative robots in organizations. The second paper, "Trusting a Humanoid Robot: Exploring Personality and Trusting Effects in a Human-Robot Partnership," examined the impacts of the Big Five personality traits to predict trust in a humanoid robot as a collaborative partner. The third paper, "Investigating the Effect of Trust Manipulations on Affect over Time in Human-Human versus Human-Robot Interactions," compared a robot partner with a human counterpart to examine the impacts of trust and distrust behaviors on affect over time. Finally, the fourth paper, "Development of a highly precise place recognition module for effective human-robot interactions in changing lighting and viewpoint conditions," introduced a neural-network architecture to enhance visual recognition for interaction with mobile robots in varying lighting and camera positions.

We are grateful to collect the interesting works to the mini-track and thank all the authors. We believe that this mini-track can help enhance our understanding of human-robot interactions and promote awareness of this topic to the audience of the conference.