Social Robots - Robotics and Toy Computing Minitrack

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Abstract

This HICSS-54 mini-track aims to present both novel and industrial solutions to challenging technical issues and compelling social robot use cases. This mini-track will share related practical experiences to benefit the reader and provide clear proof that social robots play an ever-increasing essential and critical role in supporting robotic and toy computing applications - a new cross-discipline research topic in computer science, decision science, management sciences, and information systems.

1. Introduction

A social (companion) robot, such as SoftBank Robotics' Pepper and ASUS' Zenbo, consists of a physical humanoid robot component that connects through a network infrastructure to online services that enhance traditional robot functionality. Humanoid robots usually behave like natural social interaction partners for human users, with features such as speech, gestures, and eye-gaze, referring to the users' data and social background. The usage behavior of users of anthropomorphic robots indicates that users are more open to robots. Some prior research shows that it is much easier for an embodied humanoid robot to trust users to release their personal information than a disembodied interactive kiosk. Human-Robot Interaction (HRI) is a research area of understanding, designing, and evaluating robots for use by or with humans from the social-technical perspectives.

Recently AI technologies have been applied to robotic and toy computing. Robotic computing is one branch of AI technologies and their synergistic interactions that enable and are enabled by robots. Social robots now can easily capture a user's physical activity state (e.g., walking, standing, running, etc.) and store personalized information (e.g., face, voice, location, activity pattern, etc.) through the camera, microphone, and sensors by AI technologies. Toy computing is a recently developing concept which transcends the traditional toy into a new area of computer research using AI technologies. A toy in this context can be effectively considered a computing device or peripheral called Smart Toys. We invite research and industry papers related to these specific challenges and others driving innovation in robotics and toy computing for social robots.

There are five research papers presented in this mini-track. The first paper is "Robot Dog Intervention with the Golden Pup: Activating Social and Empathy Experiences of Elderly People as Part of Intergenerational Interaction" by Ihamäki and Heljakka. The second paper is "Chatbots, Conversational Interfaces, and the Stereotype Content Model" by Seiler and Schär. The third paper is "Remote-HRI: A Pilot Study to Evaluate a Methodology for Performing HRI Research During the COVID-19 Pandemic" by Gittens. The fourth paper is "Recommendations to Enhance Privacy and Usability of Smart Toys" by Yankson et al. The fifth paper is "Specialized CNT-based Sensor Framework for Advanced Motion Tracking" by Gelsomini et al.

URI: https://hdl.handle.net/10125/70838
978-0-9981331-4-0