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"Socially Assistive Robotics: Human-Robot Interaction Methods for Creating Robots that (Provide) Care"



Wednesday, January 21, 2015

12:00 – 1:30pm

Barus and Holley Room 190

Socially assistive robotics (SAR) is a new subfield of robotics that bridges HRI, rehabilitation robotics, social robotics, and service robotics. SAR focuses on developing machines capable of assisting users, typically in health and education contexts, through social rather than physical interaction. The robot's physical embodiment is at the heart of SAR's effectiveness, as it leverages the inherently human tendency to engage with lifelike (but not necessarily humanlike or otherwise biomimetic) social behavior. This talk will describe research into embodiment, modeling and steering social dynamics, and long-term user adaptation for SAR. The research will be grounded in projects involving analysis of multi-modal activity data, modeling personality and engagement, formalizing social use of space and non-verbal communication, and personalizing the interaction with the user over a period of months. The presented methods and algorithms will be validated on implemented SAR systems evaluated by human subject cohorts from a variety of user populations, including stroke patients, children with autism spectrum disorder, and elderly with Alzheimers and other forms of dementia.

Maja Mataric' is professor and Chan Soon-Shiong chair in Computer Science, Neuroscience, and Pediatrics at the University of Southern California, founding director of the USC Robotics and Autonomous Systems Center (rasc.usc.edu), co-director of the USC Robotics Research Lab (robotics.usc.edu) and Vice Dean for Research in the USC Viterbi School of Engineering. She received her PhD in Computer Science and Artificial Intelligence from MIT in 1994, MS in Computer Science from MIT in 1990, and BS in Computer Science from the University of Kansas in 1987. She is a Fellow of the American Association for the Advancement of Science (AAAS), Fellow of the IEEE, and recipient of the Presidential Awards for Excellence in Science, Mathematics & Engineering Mentoring (PAESMEM), the Anita Borg Institute Women of Vision Award for Innovation, Okawa Foundation Award, NSF Career Award, the MIT TR100 Innovation Award, and the IEEE Robotics and Automation Society Early Career Award. She served as the elected president of the USC faculty and the Academic Senate. At USC she has been awarded the Viterbi School of Engineering Service Award and Junior Research Award, the Provost's Center for Interdisciplinary Research Fellowship, the Mellon Mentoring Award, the Academic Senate Distinguished Faculty Service Award, and a Remarkable Woman Award. She is featured in the science documentary movie "Me & Isaac Newton", in The New Yorker ("Robots that Care" by Jerome Groopman, 2009), Popular Science ("The New Face of Autism Therapy", 2010), the IEEE Spectrum ("Caregiver Robots", 2010), and is one of the LA Times Magazine 2010 Visionaries. Prof. Mataric' is the author of a popular introductory robotics textbook, "The Robotics Primer" (MIT Press 2007), an associate editor of three major journals and has published extensively. She serves or has recently served on a number of advisory boards, including the National Science Foundation Computing and Information Sciences and Engineering (CISE) Division Advisory Committee, and the Willow Garage and Evolution Robotics Scientific Advisory Boards. Details about her research are found at <http://robotics.usc.edu/interaction/>.