

## **Embodied Interaction in Healthcare New Opportunities for Old Challenges**

In this talk, I will discuss the importance of natural physical expression as means for interacting with devices, machines and robots in the healthcare domain. While the main discussion focus is on using gesture interaction, the area of embodiment will be explored as well. With the recent advent of commodity sensors, like the Kinect, Wii, Leap Motion and MYO arm bands, exciting and provoking directions of research and applications are gaining traction among the industry and academic communities. These discussions are focused on the fundamental question of what are the technical and cognitive advantages of using such interfaces over more traditional forms of interaction. The advantages spread over all disciplines and are especially relevant in healthcare. In my presentation, I will discuss insights and findings after studying how people adopted gestural interfaces to assist clinicians and patients. Examples of these works involve the use of gestures to control robots for collaboration with surgeons, for surgical training and for rehabilitation. These applications will be featured in my talk.

I will conclude the talk by addressing key sociological and technological challenges that the next generation of embodied interfaces have to meet in order to better serve humankind.

### **About the speaker**



Dr. Juan Wachs is an Associate Professor in the Industrial Engineering School at Purdue University. He is the director of the Intelligent Systems and Assistive Technologies Lab (ISAT) at Purdue, and he is affiliated with the Regenstrief Center for Healthcare Engineering. He completed a postdoctoral training at the Naval Postgraduate School's MOVES Institute in under a National Research Council Fellowship from the National

Academies of Sciences. He received his B.Ed.Tech in Electrical Education. His M.Sc and Ph.D in Industrial Engineering and Management, Information Systems and Intelligent Systems tracks, respectively, from the Ben-Gurion University of the Negev. He is the recipient of the 2013 Air Force Young Investigator Award. He is the associate editor of IEEE Transactions in Human-Machine Systems and the Journal of Real-Time Image Processing.