The Center for Control, Dynamical Systems, and Computation
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Presents

Multi-point Interaction in Haptics

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Abstract:
In virtual reality, augmented with tactile force feedback, the interaction with simulated environments typically occurs through a single point of contact with the object. This is mainly due to the complexity of the modeling and mechanical design of multi-point tactile devices. Consider that most of the commercially available force feedback devices, such as the Phantom by Sensable and the Omega by Force Dimension, render one contact point only. In the real world, however, human hands typically manipulate objects through multiple points of contacts and, driven also by the increasing number of potential applications, recently multi-point contact interaction paradigm is attracting the interest of many researchers in academia and companies. This talk will address some of the recent issues in multi-contact haptic interaction that involves both the model and the control aspects of the problem.

About the Speaker:
Domenico Prattichizzo received a Laurea degree in Electronics Engineering and Ph.D. degree in Robotics and Automation from the University of Pisa in 1991 and 1995, respectively. In 1994, he was a Visiting Scientist at the MIT Artificial Intelligence Lab. Since 2002 he has been an Associate Professor of Robotics at the Dipartimento di Ingegneria dell'Informazione of the University of Siena. His main research interests are in haptics, grasping and dexterous manipulation, control of robots and mechanical systems, computer vision and geometric control theory. He is the author of more than 150 papers in the area of robotics and automatic control and co-editor of two books by STAR, Springer Tracks in Advanced Robotics, Springer (2003, 2005). He was also guest editor of the special issue on Robotics and Neuroscience of the Brain Research Bulletin (2008). Since 2007 he has been the Associate Editor in Chief of the IEEE Trans. on Haptics. Since 2006 he has been the Vice-chair for special issues and workshops of the IEEE Technical Committee on Haptics. From 2003 to 2007, he was Associate Editor of the IEEE Trans on Robotics and IEEE Trans. on Control Systems Technologies. He is a member of the Editorial Board of many Conferences on Control and Robotics.