Seminario: 16 Luglio 2019, ore 11.00

Sala Riunioni

Speaker: **Prof. Stefano Carpin**

RAPID: Robot Assisted Precision Irrigation Delivery

L'incontro è stato promosso dalla Prof. M.Cristina Pinotti, nell'ambito delle attività di ricerca correlate all'assegno di ricerca NALP-SAPR: Navigazione Autonoma e Localizzazione Precisa per Sistemi Aeromobili a Pilotaggio Remoto, finanziato da FSE-Regione Umbri e Università di Perugia

Abstract:

Agricultural irrigation consumes 70% of the world's managed freshwater. Emerging sensing technologies such as UAVs equipped with heterogeneous sensors can provide farmers with detailed maps of water use and ground conditions. However, closing the sensing-actuation loop to adjust irrigation at the plant level remains an unsolved challenge. Some proposed solutions rely on networks of motorized wireless actuators that are costly and prone to failure in field conditions. RAPID (Robot-Assisted Precision Irrigation Delivery) explores an alternative approach whereby a team of humans and robots move through fields to adjust low-cost adjustable drip irrigation emitters at the plant level. RAPID is designed for cost-conscious farm managers to be retrofit to existing irrigation systems and incrementally expanded to increase irrigation precision and plant yield, reduce water usage, and with robots, permit thousands of emitters to be incrementally. The project involves the design, development, and evaluation in the field of robust co-robotic systems compatible with existing drip irrigation infrastructure in vineyards and orchards. After giving an overview of the project, in this talk I will illustrate current results in the area scheduling and inference of local soil moisture conditions from aerial images.

Bio:

Stefano Carpin is full professor of computer science at the University of California, Merced where he currently serves as department chair. He received his “Laurea” (1999) and Ph.D. (2003) in electrical engineering and computer science from the University of Padova (Italy). He joined UC Merced in 2007, after having held faculty positions with Jacobs University Bremen, Germany from 2003 to 2006. His research interests include mobile and cooperative robotics for service tasks, and robot algorithms. He published more than 100 papers in international journals, and conferences, and he is a Senior Member of the IEEE. He is an associate editor an associate editor for the IEEE Robotics and Automation Letters (RA-L), and serves as associate editor for the major international conferences in robotics automation (ICRA, IROS, CASE). His research has been supported by the National Science Foundation, DARPA, USDA, the Office of Naval Research, the Army Research Lab, the Department of Commerce (NIST), the Center for Information Technology Research in the Interest of Society (CITRIS), Microsoft Research, and General Motors.