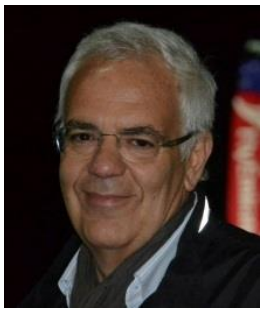

Bruno Siciliano is Professor of Control and Robotics, Director of the Interdepartmental Center for Advanced Robotics in Surgery (ICAROS) and Responsible of the PRISMA Lab in the Department of Electrical Engineering and Information Technology at University of Naples Federico II. He is Honorary Professor of Óbuda University for his outstanding achievements in improving and increasing the international quality of education, scientific research and academic activities of Óbuda University. His research interests include force and visual control, human-robot interaction, aerial and service robotics. He has co-authored 7 books, 85 journal papers, 250 conference papers and book chapters. He has delivered 150 invited lectures and seminars at institutions worldwide, and he has been the recipient of several awards including the recent 2015 IEEE Robotics and Automation Society (RAS) George Saridis Leadership Award in Robotics and Automation. He is a Fellow of IEEE, ASME and IFAC. He has served on the editorial boards of several peer-reviewed journals and has been chair of program and organizing committees of several international conferences. He is Co-Editor of the Springer Tracts in Advanced Robotics, and of the Springer Handbook of Robotics, which received the PROSE Award for Excellence in Physical Sciences & Mathematics and was also the winner in the category Engineering & Technology. His group has been granted sixteen European projects in the last eight years for a total funding of 9 M€, including an Advanced Grant from the European Research Council. Professor Siciliano is the Past-President of IEEE RAS.

PRISMA Lab
Dipartimento di Ingegneria Elettrica
e Tecnologie dell'Informazione
Università degli Studi di Napoli Federico II
Via Claudio 21, 80125 Napoli
Tel +39 0817683179
Mob +39 368605665
Email bruno.siciliano@unina.it
Skype bsiciliano
URL http://wpage.unina.it/sicilian

Robotic Dynamic Manipulation

The state of the art of robotic manipulation is still rather far from the human dexterity in the execution of complex motions such as, for example, in dynamic manipulation tasks. Dynamic manipulation is considered as the most complex category of manipulation requiring ad-hoc controllers and specialized hardware. In case of non-prehensile manipulation or non-rigid objects, the task of dynamic manipulation becomes even more challenging. This reduces the opportunities for wide adoption of robots within human co-habited environments. This plenary talk presents the current development in the framework of the RoDyMan project www.rodyman.eu, including a method to manipulate rigid objects in a non-prehensile way with an underactuated robot manipulator, algorithms to track in real-time a 3D object undergoing large elastic and plastic deformations and fast rigid motions, and a technique to control the tossing motion of an object in space. The tasks are tested on a set-up of a pizza chef robot with a bimanual mobile manipulator platform.