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Vincent Padois · Philippe Bidaud · Oussama Khatib  
*Editors*

# Romansy 19- Robot Design, Dynamics and Control

Proceedings of the  
19th CISM-Iftomm Symposium



Springer

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## PREFACE

*The first CISM-IFTToMM Symposium on Theory and Practice of Robots and Manipulators was held on September 5-8, 1973 at CISM in Udine, Italy. The Symposium has been called RoManSy for Robot and Manipulator Systems. Indeed, RoManSy has been the very first international symposium dedicated to the Robotics field. The chairman of the first RoManSy was Professor A.E. Kobrinsky, and personalities such as Professors M. Konstantinov, I.I. Artobolevski, G. Bianchi, A. Morecki, B. Roth, M. Vukobratovic, were members of the Program Committee.*

*For over 35 years now, the RoManSy symposia provided a framework for fruitful exchanges between researchers around the world on modelling and design of complex robotic systems, design of control systems and interactions induced in challenging applications of robotic systems. The RoManSy has been and remains the place where scientific questions such as those related to the kinematic analysis and synthesis of complex mechanisms, the design of advanced robotic systems, the analysis of the dynamic behaviour of robotic systems and their applications in order to achieve a certain level of autonomy or adapt to changes in physical and human environment are specifically discussed.*

*Modelling issues of robotic systems, their physical and cognitive interactions with the environment and humans, and their dynamic control have been the core of the exchanges among attendees during RoManSy 2012. They took place based on a set of technical sessions that have involved contributions in a number of fundamental and applied aspects related the design and the control of parallel manipulators for challenging applications with a particular focus on cable-driven machines, human-robot interfaces including those for physical interactions such as those useful for physical rehabilitation, human modelling and humanoid control as well as the design of integrated perception devices, mobile robots navigation on natural terrains, etc.*

*Each session was introduced by a presentation placing the state of the art in the field and defining a number of scientific challenges. In*

*addition, the invited speakers (Professor A. Bicchi and A. Edsinger, co-founder of Meka Robotics) offered a unique perspective on particularly rich topics of research: design of bio-inspired dexterous hands and design of human friendly robots.*

*Future researches on the various topics covered by the 2012 RoManSy are obviously particularly important. Clearly, by considering their impact on the development of next-generation robotic systems, they will be subject to numerous investigations in the coming years and will be major topics for future editions of RoManSy to which we wish a great success.*

*Philippe Bidaud, Université Pierre et Marie Curie  
Oussama Khatib, Stanford University  
Vincent Padois, Université Pierre et Marie Curie*

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