

学术报告会

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Robot Hands:

Design Aspects and Control Problems

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Abstract:

A key feature of current robotic devices is the possibility of reproducing the human capabilities to grasp and manipulate objects of diversified shape and dimension. For this reason, the design of articulated robot hands has always been a very important research field, with significant developments in terms of kinematic design, sensor and actuation system, control. In the talk, these aspects will be discussed with reference to a number of robot hands developed in the last 25 years of research activity at LAR, the Laboratory of Automation and Robotics of the University of Bologna. In particular, the hands recently developed within two European Projects (DEXMART and TRIDENT) will be presented along with their most innovative features.

Biography:

Claudio MELCHIORRI obtained the Laurea Degree in Electronic Engineering in 1985 and the PhD in 1990, at the University of Bologna. In 1985, he started his research activity at DEIS, Dipartimento di Elettronica Informatica e Sistemistica of the University of Bologna, where in 1990 became a Research Associate and where he is currently a Full Professor in Robotics. Since 2008, he is Director of the degree program in "Automation Engineering" (first and second level) at the School of Engineering and Architecture of the University of Bologna. He has participated to and coordinated several research projects in robotics, automatic control and automation. His research interests include robotics (dexterous manipulation, telemanipulation, haptic systems, advanced sensors), control theory (non linear control, passivity, robust control), and motion control (electric motors, trajectory planning, hw/sw real-time control systems). He has been appointed as "Adjunct Associate in Engineering" at the Dept. of Electrical Eng., Univ. of Florida, Gainesville, FL, in 1988 and as "Visiting Scientist" at the Artificial Intelligence Lab., MIT, Cambridge, MA, USA, for periods in 1990 and 1991. He is "Senior Member" of IEEE, member of the IFAC Technical Committee on Robotics and of the IFAC Technical Committee on Mechatronics. He has been member of the Editorial Boards of the IEEE Transactions on Robotics and Automation and of the IEEE Transactions on Robotics. He has been Editor-in-Chief of the IFAC Journal on Mechatronics in 2003-2008, and currently he is member of the Editorial Board of the Int. Journal of Robotics and Autonomous Systems, of Control Engineering Practice, and of the IFAC Journal on Mechatronics.