



DESIGN AND IMPLEMENT OF ROBOT BODIES TOWARDS ENHANCED PHYSICAL INTERACTIVE PERFORMANCE

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ABSTRACT: In this talk, the design of humanoid robotic bodies which are towards enhanced physical interactive performance will be introduced through three main parts. The first is about the design and development of a 3-DoF articulated robotic leg (eLeg) with Series-Parallel (SEA&PEA) and Biarticulation compliant actuation, which is desired for energy efficiency enhancing and explosive motion ability. The second is regarding the design and application of a series finger-modular under-actuated hands (HERI&II&II-M Hand) for field robots application. Finally the achievements and practical experiences from EU2020 Disaster-Response CENTAURO project will be presented.

BIOGRAPHY: Zeyu Ren received his bachelor degree in Mechatronic Engineering in 2015 from Zhejiang University, China. He was the member of ZJUNlict (RoboCup robotic soccer team) and won the Championship in 2014 RoboCup Small-Size League. In 2019, he obtained his Ph.D. in Robotics from Italian Institute of Technology (iit) and University of Genova (UniGe) with dissertation entitled "Design and Implement Towards Enhanced Physical Interactive Performance Robot Bodies". During his Ph.D., he was involved in European H2020 Project CENTAURO for designing the end-effector for a Centaur-Like Disaster-Response robot. He is currently a Post Doc under Dr. Nikos G. Tsagarakis in the Research Line of Humanoids and Human Centered Mechatronics (HHCM), Italian Institute of Technology. His research interests are focused on the design of robotic hands and articulated robots with tendon driven, under actuation and soft elements.