



" Perception for Humanoid Robot Locomotion and Manipulation in Complex Environments"

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Περίληψη – Abstract

Attaining animal-like locomotion and manipulation in uncertain environments with sparse foothold and handhold affordances is a largely open problem. New advancements in mechatronics and control have enabled robots with limbs to complete some impressive complex tasks, especially indoors. Moving outdoors, where reliable contacts with unstructured and uncertain environment surfaces are necessary, new perception and planning algorithms are required. This talk will focus on some of our latest perception results for rough terrain locomotion and object/tool manipulations, that were applied on three different robots: a small-size (RPBP), a half-size (COMAN), and a full-size (WALK-MAN) humanoid.

[Dimitrios Kanoulas](#) is a senior postdoctoral researcher at the Humanoids and Human-Centered Mechatronics (HHCM) lab of the Department of Advanced Robotics (AVDR) at the Istituto Italiano di Tecnologia (IIT) in Genoa, working with Dr. Nikos Tsagarakis and Prof. Darwin Caldwell on the perception part of the WALK-MAN, CogIMon, CENTAURO, and Pholus projects. He was the perception team leader of the WALK-MAN DRC team during the DARPA Robotics Challenge 2015. In August 2014, he completed his Ph.D. at the Geometric and Physical Computing (GPC) Lab in the College of Computer and Information Science at Northeastern University in Boston, advised by Prof. Marsette Vona (currently at NASA JPL). He started out as a member of the Algorithms and Theory group at Northeastern University in Boston, working on algorithmic game theory for networks, advised by Prof. Rajmohan Rajaraman and Prof. Ravi Sundaram. During the summer of 2012, he completed an internship on vehicle localization at INRIA-Grenoble in France, advised by Prof. Christian Laugier and Dr. Alexandros Makris. In 2008, he received his Diploma in Computer Engineering and Informatics Department (CEID) at the University of Patras in Greece, advised by Prof. Paul Spirakis and Dr. Haralampos Tsaknakis.

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