



November 2, 2016

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### Multi-contact technology for humanoid robots: theory, experiments and applications

November 2, 2016 – h 10:30 am – 11:30 am

Blue Room – TeCIP Institute

This talk sums up the main achievements in our endeavor to embed humanoid robot with multi-contact, non-gaited motion behaviors in confined spaces. We will discuss the fundamental bases in planning and model-based optimization techniques with or without model reduction to solve multi-contact problems. We describe different paths we investigated to resolve this challenging problem and, for each, what worked and what didn't work and why. We will also discuss practical issues that were discovered through various experiments. Finally, we introduce our current efforts concerning our project to apply multi-contact humanoid technology in aircraft -and more generally large scale- manufacturing industries.

#### Short Bio:



**Abderrahmane Kheddar** received the BS in Computer Science degree from the Institut National d'Informatique (ESI), Algiers, the MSc and Ph.D. degree in robotics, both from the University of Pierre et Marie Curie, Paris. He is presently Directeur de Recherche at CNRS and the Director of the CNRS-AIST Joint Robotic Laboratory (JRL), UMI3218/RL, Tsukuba, Japan. He is also leading the Interactive Digital Humans (IDH) team at CNRS-University of Montpellier LIRMM, France. His research interests include haptics, humanoids and recently thought-based control using brain machine interfaces. He is a founding member of the IEEE/RAS chapter on haptics (acting also as a senior advisor), the co-chair and founding member of the IEEE/RAS Technical committee on model-based optimization, Editor of the IEEE Transactions on Robotics and within the editorial board of some other related robotics journals; he is a founding member of the IEEE Transactions on Haptics and served in its editorial board during three years (2007-2010). He is an IEEE senior member, titular full member of the National Academy of Technology of France and knight in the National Order of Merit of France.

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