



**Séminaire ISIR**  
Mercredi 30 Novembre 2016 à  
10H30

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**Salle de réunion H20**

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## Toward Unified Framework for Anthropomorphic Motion Simulation and Synthesis

**Abstract :** In this research, we seek to build a unified framework that allows describing dynamic behavior of anthropomorphic figures, including humans and humanoid robots, which can be utilized to evaluate effects and quality of products closely interacting humans. Human motions are measured, analyzed and simulated using a digital human, which models its shape, dynamics, and musculo-skeletal structures in order to reproduce human behaviors. We integrate interactions with products and environments to perform ergonomic evaluation. Humanoid robots play a complementary role in this framework. Humanoid robots, whose structure is close to humans and can reproduce human motions, are useful because they can measure their internal states such as posture and force with their sensors, unlike humans. They not only serve as subjects to test the product instead of humans for qualitative evaluation, but also validate simulation results by comparing them with experiments.

**Short bio :** Eiichi Yoshida received ME and PhD degrees on Precision Machinery Engineering from Graduate School of Engineering, the University of Tokyo in 1993 and 1996, respectively. In 1996, he joined former Mechanical Engineering Laboratory, later reorganized as National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan. He served as Co-Director of AIST/IS-CNRS/ST2I Joint French-Japanese Robotics Laboratory (JRL) at LAAS-CNRS, Toulouse, France, from 2004 to 2008. Since 2009, he is Co-Director of CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/RL, and since 2015 he serves as Deputy-Director of Intelligent Systems Research Institute (IS- AIST), AIST, Tsukuba, Japan. His research interests include robot task and motion planning, human modeling, and humanoid robots.