Einladung zum Vortrag

**COGNITION-ENABLED EVERYDAY MANIPULATION**

von

Prof. MICHAEL BEETZ PhD
Technische Universität München, Deutschland

**TERMIN:** Mittwoch, 21. Juli 2010, 11:00 Uhr
**ORT:** ACIN Computerlabor, Gußhausstraße 27-29, 4. Stock (ECA 0426)

**ABSTRACT**
In recent years we have seen tremendous advances in the mechatronic, sensing and computational infrastructure of robots, enabling them to act faster, stronger and more accurately than humans do. Yet, when it comes to accomplishing manipulation tasks in everyday settings, robots often do not even reach the sophistication and performance of young children. This is partly due to humans having developed their brains into computational and control devices that facilitate knowledge-informed decision making, perspective taking, envisioning activities and their consequences, and predictive control. Brains orchestrate these learning and reasoning mechanisms in order to produce flexible, adaptive, and reliable behaviour in real-time.

Household chores are an activity domain where the superiority of the cognitive mechanisms in the brain and their role in competent activity control is particularly evident.

In this talk, I will give an overview of the Intelligent Autonomous Systems group's ongoing research in the excellence cluster "Cognition for Technical Systems", in which we investigate --- in an interdisciplinary endeavour --- cognitive mechanisms that are to enable autonomous robots to produce flexible, reliable and high-performance behaviour for everyday manipulation activities. The talk will step through the "cognition-enabled perception-action loop" for robot control. I will describe various capabilities including ones for semantic 3D object perception, knowledge processing, plan-based execution control, and perception-guided manipulation.

**BIBLIOGRAPHICAL INFORMATION**
Michael Beetz is a professor for Computer Science at the Department of Informatics of the Technische Universität München and heads the Intelligent Autonomous Systems group. He is vice coordinator of the German national cluster of excellence COTESYS (Cognition for Technical Systems) where he is also co-coordinator of the research area "Knowledge and Learning".

Michael Beetz received his diploma degree in Computer Science with distinction from the University of Kaiserslautern. He received his MSc, MPhil, and PhD degrees from Yale University in 1993, 1994, and 1996 and his Venia Legendi from the University of Bonn in 2000. Michael Beetz was a member of the steering committee of the European network of excellence in AI planning (PLANET) and coordinating the research area "robot planning". He is associate editor of the AI Journal, program chair of the robotics track at AAMAS 2010, and workshop chair at AAAI 2010. He is also principal investigator of a number of research projects in the area of AI-based robot control. His research interests include plan-based control of robotic agents, knowledge processing and representation for robots, integrated robot learning, and cognitive perception.

**WEITERE INFORMATIONEN**
Ao.Univ.-Prof. Dr. Markus Vincze, Institut für Automatisierungs- und Regelungstechnik, vincze@acin.tuwien.ac.at
Tel. 58801 - 37661