

IRT International Seminar

Sponsored by IRT Education and Research Committee of
Ritsumeikan University

Date **9/26 (Wednesday), 2007**
14:10-15:30

Place **Seminar Room of Dept. Human and Computer Intelligence**
Creation Core 4F
Biwako-Kusatsu Campus, Ritsumeikan University

Model-based Control for Cognition in Technical Systems

Prof. Dr. Olaf Stursberg

Institute of Automatic Control Engineering

Technical University of Munich

Germany

Presenter:

Prof. Dr. Olaf Stursberg
Institute of Automatic Control Engineering
Technical University of Munich

Title:

Model-based Control for Cognition in Technical Systems

Abstract:

The presentation consists of three parts: The first part gives an overview of the research activities within the cluster of excellence „Cognition for Technical Systems“, which was recently established in the Munich area to strengthen collaborative research efforts on intelligent technical systems. By bringing the expertise of neuroscientists, engineers, computer scientist and mathematicians together, the paramount objective of the cluster is to enable systems like autonomous robots, vehicles, and factories to act goal-oriented, flexibly, and on their own in changing environments and for varying specifications.

The second parts reports on three approaches currently pursued by the presenter within the cluster: (a) a hierarchical scheme for action planning for cognitive systems including learning capabilities, (b) a control architecture guaranteeing safe operation of robot icsystems, in particular for interaction with humans, and (c) an approach to assess the safety of driving strategies for autonomous vehicles.

The third part summarizes other research activities of the presenter, which have (not yet) an immediate link to cognition but focus on control of hybrid dynamic systems. Exemplarily and in more detail, an approach for synthesizing supervisory controllers for hybrid automata by using the technique of abstraction-refinement is described.

Short Biography of the Presenter:

Dr. Olaf Stursberg is Associate Professor of Industrial Automation Systems in the Department of Electrical Engineering and Information Systems at the Technical University of Munich (Germany). His main topics in research and teaching are the design of optimal, predictive, and supervisory controllers of hybrid dynamic models, the verification of embedded systems, discrete event control, and recently cognitive and intelligent systems.

Prior to his appointment in Munich, Dr. Stursberg was a Senior Researcher at the Department of Chemical Engineering at University of Dortmund (Germany) and a Postdoc in the Department of Electrical and Computer Engineering at Carnegie Mellon University (Pittsburgh, USA). He received a PhD degree from University of Dortmund for work on verification of supervisory controllers for hybrid systems, and a diploma degree in Chemical Engineering from the same University.