



### Vortragsankündigung

Am

**Donnerstag, 26. November 2015**  
**in Raum P1.3.02 um 14:00 Uhr**

hält Herr Dr. Sebastian Trimpe vom Max-Planck-Institut Tübingen einen Vortrag über

## **Distributed and Event-Based State Estimation**

### **Abstract:**

Communication networks offer great opportunities for the design and control of future engineering systems since they allow for easy and flexible exchange of data between different units. Yet, communication must be managed in order to avoid overload or excessive delays when multiple controllers share the same network. To address this problem, we have developed methods for event-based state estimation for networked dynamic systems, where multiple sensor-actuator-agents exchange data with each other over a shared bus. Solving the joint estimation problem, while at the same time saving communication resources, each agent transmits its local data only when required to meet a certain estimation performance. Different methods implementing this idea are discussed in this talk, with specific focus on the choice of the event triggering mechanism.

The event-based algorithms are demonstrated in experiments on the Balancing Cube (see photo), a two-meter-tall dynamic sculpture that can balance autonomously on any one of its corners. Remote control of an autonomous robot with reduced communication will also be discussed as a second application example.



### **Bio:**

Sebastian Trimpe is a Research Scientist at the Max Planck Institute for Intelligent Systems (MPI-IS) in Tuebingen, Germany. Prior to joining MPI-IS, Sebastian was lecturer and postdoctoral researcher at the Institute for Dynamic Systems and Control at ETH Zurich, Switzerland, where he also completed his Ph.D. (Dr. sc.) with Raffaello D'Andrea in 2013. Before, he received a B.Sc. degree in General Engineering Science in 2005, a M.Sc. degree (Dipl.-Ing.) in Electrical Engineering in 2007, and an MBA degree in Technology Management in 2007, all from Hamburg University of Technology, Germany. In 2007, he was a research scholar at the University of California at Berkeley, USA. Sebastian is recipient of the General Engineering Award for the best undergraduate degree (2005), a scholarship from the German National Academic Foundation (2002-2007), the triennial IFAC World Congress Interactive Paper Prize (2011), and the Klaus Tschira Award for achievements in public understanding of science (2014).

