

# DISC Summer School on 'Control for Cyber-Physical Systems'

Submitted by Katie Dey on Thu, 06/02/2016 - 1:22pm

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The design of next generation smart electricity grids, intelligent transportation, electron microscopy and high-end printing requires a tight coordination between computation, communication and control elements (the cyber part) on the one hand, and physical processes such as heating, cooling, motion, vibrations, etc. (the physical part) on the other hand. Despite the need for integrated design of these so-called Cyber-Physical Systems (CPS), the corresponding scientific disciplines (control, computer science, etc.) have predominantly developed independently. Novel system architectures and systematic design methods are needed to realize the integrated design of the CPS of the future.

Particular attention was given to:

- Control over communication networks
- Security of CPS
- Resource-aware control
- Formal methods in control of CPS
- Hybrid systems
- Multi-agent systems
- Distributed and decentralized control
- Model predictive control
- Applications

The program included four days of lectures, 8 hours of 45min each day (only first and last day less hours), covering the main concepts, results and contributions in the area of cyber-physical systems emphasising the prominent role played by control theory and technology in it.

The idea of the school was to initiate young graduate students into the field of CPS, therefore lectures were as much didactic as possible, possibly sacrificing the presentation of the most recent results in favor of a clear and deep exposition of the basic ones. As such, the presentations were in a lecture style (providing explanations, insights and overviews), rather than in a workshop/conference style.

DISC is the Dutch Institute of Systems and Control that encompasses all researchers in systems and control in the Netherlands. DISC is providing PhD courses for the PhD students in control in the Netherlands throughout the year, which are taught by leading scientists in the field, see, for instance, [here](#). Next to

PhD courses, DISC has also organised a DISC summer school on various control and control-related topics for over 20 years. Recently organized summer schools are: "Modelling and Control of Hybrid Systems" (2003), "Modelling, Estimation and Optimization of Complex Physical Systems" (2005), "Identification and Control of Linear Parameter-varying Systems" (2006), "Nonlinear Control" (2007), "Cells and Systems" (2008), "Distributed Control and Estimation" (2009) and "Dynamics and Control Problems in Medical Robotics" (2011).

Event Details

**Location:** Centerparcs park Zandvoort (Amsterdam), The Netherlands

**URL:** <http://disc-cps15.imtlucca.it/index.html>

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[Control Science of Security Education 2015 Summer School](#)

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