

## MAGDEBURG LECTURES ON OPTIMIZATION AND CONTROL

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**Magdeburg Lectures on Optimization and Control**

**Prof. Dr. Gabriele Pannocchia**  
University of Pisa

**Optimization based planning and feedback control: an on-going journey**

Mo, 19.03.2018 17:00-18:00 G07-208

Further information:  
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Jointly organized by: Faculty of Electrical Engineering and Information Technology  
Faculty of Mathematics  
Max Planck Institute Magdeburg  
Center for Dynamic Systems: Biosystems Engineering

Logos: Otto von Guericke University Magdeburg, EIT (European Institute of Technology), Faculty of Electrical Engineering and Information Technology, CDS (Center for Dynamic Systems), MATH (Faculty of Mathematics), Max Planck Institute Magdeburg, Center for Dynamic Systems: Biosystems Engineering.

16.03.2018 - **Optimization based planning and feedback control: an on-going journey**

› Gabriele Pannocchia

([http://www1.diccism.unipi.it/Pannocchia\\_Gabriele/Web/Welcome.html](http://www1.diccism.unipi.it/Pannocchia_Gabriele/Web/Welcome.html))

Associated Professor,  
Department of Civil and Industrial Engineering,  
University of Pisa

### Time & Place

The presentation on March 19, 2018 will be given at the Otto-von-Guericke-University Magdeburg, Universitätsplatz 2, building 7 - room 208 and starts at 5 p.m..

### Abstract

Optimization based strategies for planning and feedback control represent a general framework of numerical methods in which a (often deterministic) model of the system under consideration and its environment are exploited to achieve high-level goals (e.g., minimization of energy consumption, emission of pollutants, maximization of throughput, etc.) as well as more specific tasks (e.g. product quality control, robotic manipulation), while respecting a number of constraints arising from physical, safety or performance limits.

In this seminar, I review and analyze the main concepts, successes and ongoing challenges of

optimization based methods, with a particular emphasis on how uncertainties can be dealt with effectively and efficiently using disturbance estimation techniques. During the seminar, I present several examples ranging from reaction processes to robotic systems.