

## MAGDEBURG LECTURES ON OPTIMIZATION AND CONTROL

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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.