

Online Course in Summer Semester 2021
Lecture: Mon, 14:30-16:00, Tutorial: Mon, 16:15-17:00
Computer Tutorial: Mon, 17:00-18:30

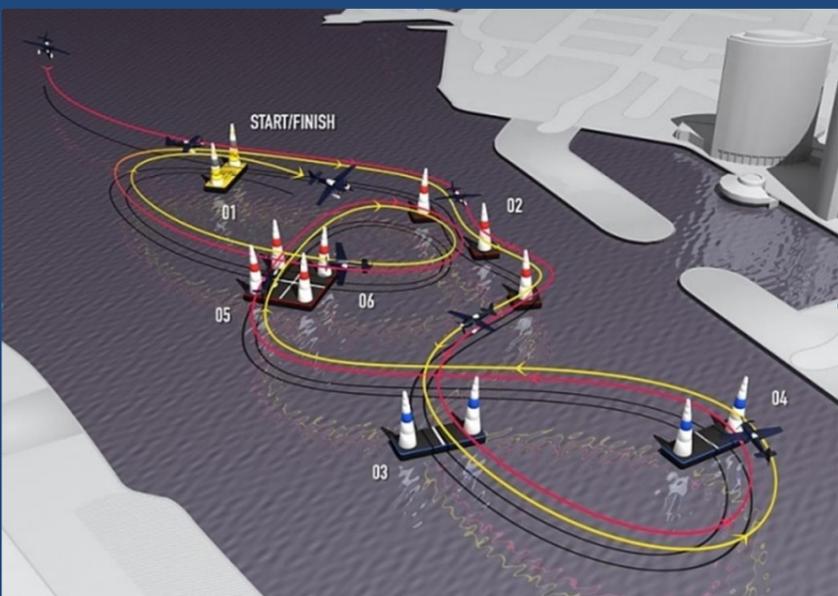
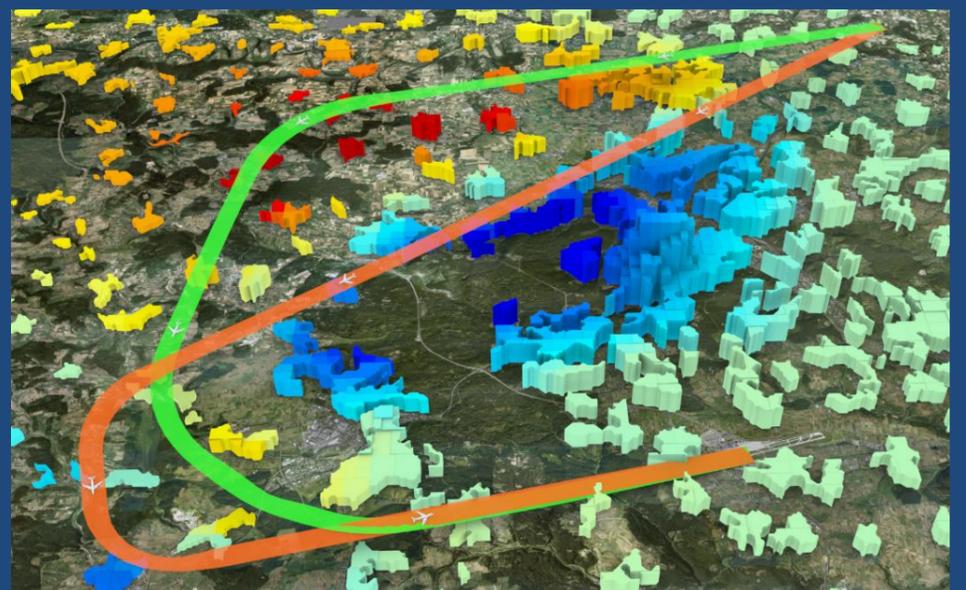
Aircraft Trajectory Optimization

(Flugbahnoptimierung)

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First lecture: 19th April, 2021

In aircraft trajectory optimization problems optimal control histories are computed, such that a dynamic system fulfils a given task best possibly. At the same time, the solution to the problem needs to meet the given constraints, like the boundary conditions. The lecture highlights the main steps when solving an optimal control problem: from formulating a scalar cost function to modelling the dynamic system up to a numerical solution of the problem. To deepen the presented approaches the lecture is complemented by a tutorial and a computer tutorial. Even though the presented examples are based on aerospace applications, the methodology can be applied in many domains.



Content

1. Optimal Control Theory
2. Numerical Optimization
3. Modeling of Dynamic Systems
4. Simulation
5. Generation of Initial Guesses
6. Aircraft Specific Boundary Conditions and Cost Functions
7. Discretization Methods
8. Implementation in Matlab

**Max. 24 participants in the computer tutorial. Please register in TUM-Online.
Further information:**

TUM students please register in TUM-Online, UniBw M students please contact Prof. Gerdts.