SSY281 Model Predictive Control

Micro-homework 3

Basic Control

Deadline: February 1, 10:00

Systems & Control
Department of Electrical Engineering
Chalmers University of Technology

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Instructions

This assignment is **individual** and must be solved according to the following rules and instructions:

- Written report:
  - It should be one page with pdf format.
  - The report should be uploaded *before the deadline* to your project document area in PingPong.
  - Name the report as MA3_XX.pdf, where XX is your *group* number.
- Grading:
  - This assignment is *pass* or *fail*.

Question 1. *Why in the constraint Linear Quadratic MPC, the control input is calculated online? Why do not we use Dynamic Programming to find an explicit controller?*

Question 2. *Assume a constraint Linear Quadratic MPC is implemented with $x(N) \in \mathcal{X}_f$ as the terminal constraint and there is no uncertainty in the system. Can you claim that after N sample times, the system state is is contained by $\mathcal{X}_f$?*