HÖGSKOLAN
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Review of Automatic Control

Introduction

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About the lecturer

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Purpose of review

- In the courses “Advanced Digital Control” and “Multivariable and Nonlinear Control Systems”, it is assumed that the students are familiar with basic control theory.

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- MATLAB is very useful.
- LaTeX is useful for writing reports etc.

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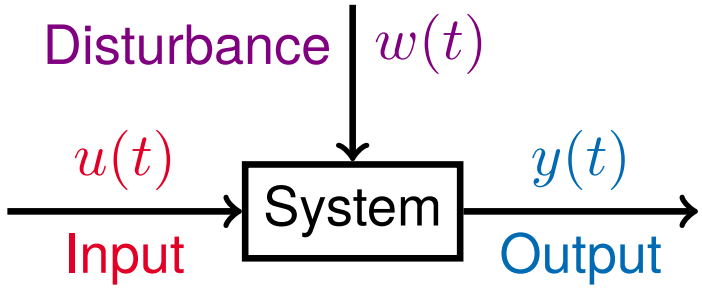
What is the purpose of control theory?



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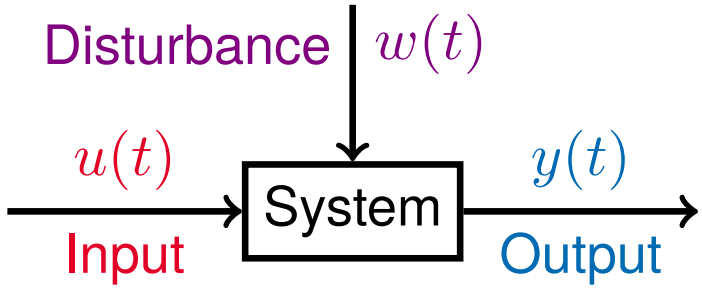

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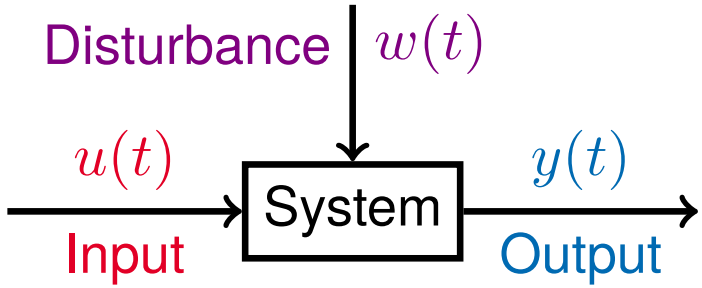

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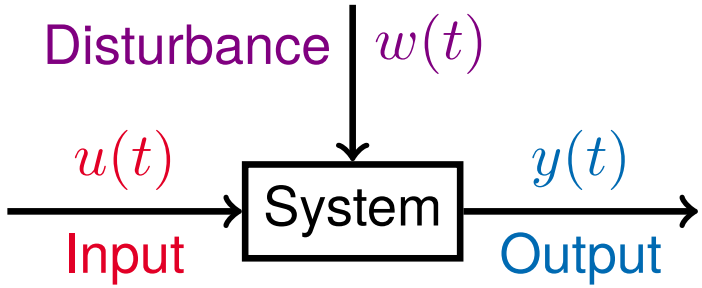

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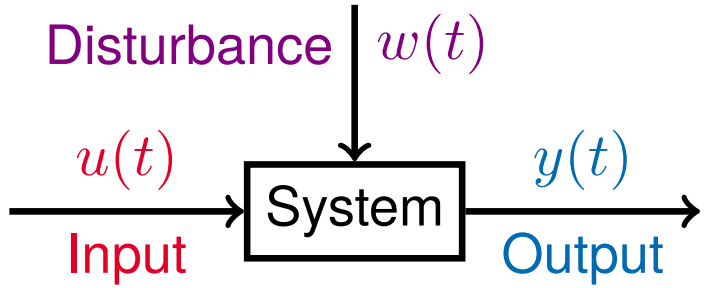

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- The system is a real-world object like an industrial machine, a car, an airplane, a segway etc.
- The system is controlled through a number of inputs $u(t)$.
- The output $y(t)$ can be measured.
- **Typical goal:** Design an automatic controller that computes an input $u(t)$ so that the output $y(t)$ follows some reference $r(t)$, even though the system is disturbed by some unknown signals $w(k)$.

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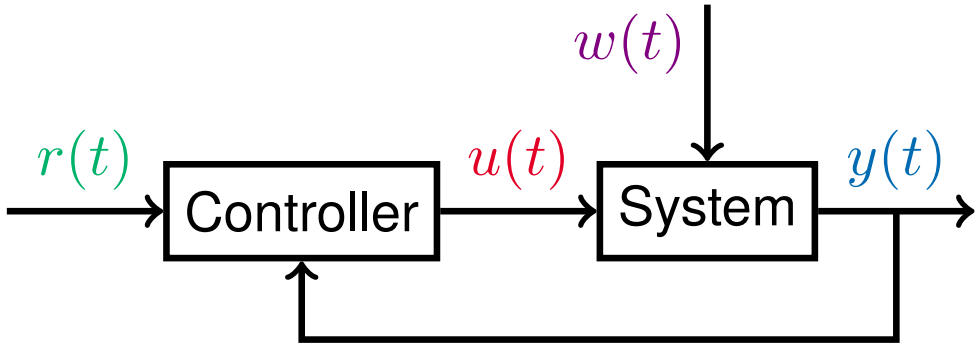
Feedback



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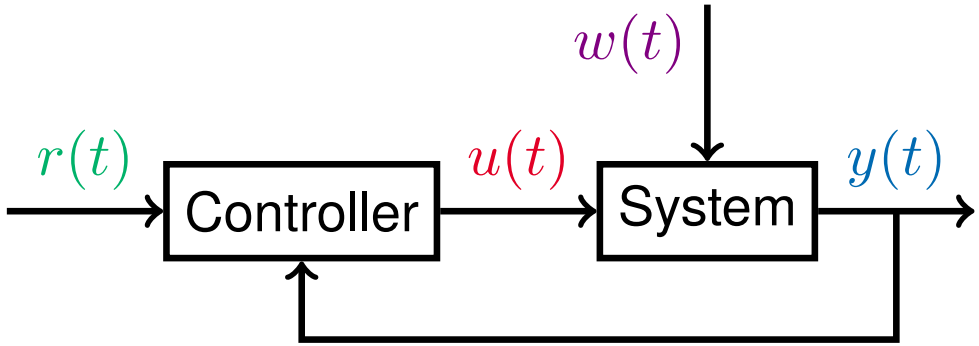

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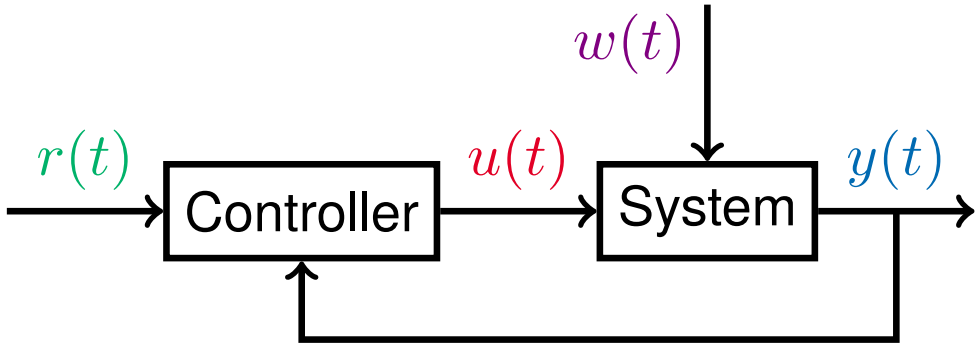

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- In control theory we study both how to design the controller, and how to analyse the resulting **closed-loop system** mathematically.
- Typically we use a mathematical model of the system when designing and analysing the controller.

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