Technische Universiteit
Eindhoven
University of Technology

Master's program: Systems & Control

Maurice Poot

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Where innovation starts

Master's program Systems & Control:

What is S&C about?

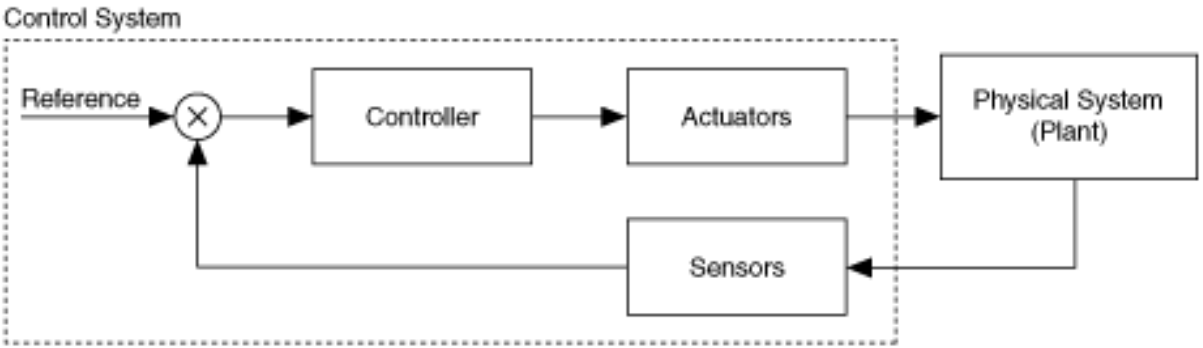
The program:

- Context
- Structure
- Courses
- Character

After graduation?

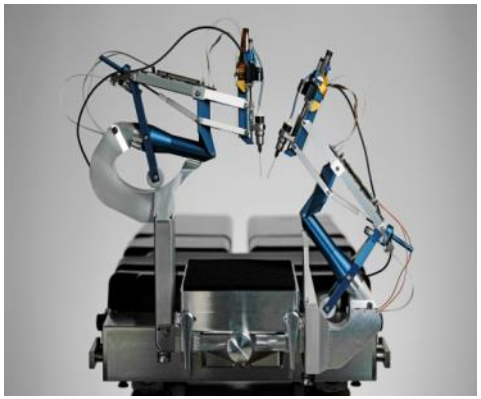
Systems & Control:

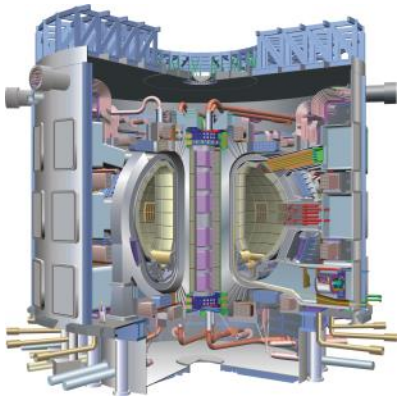
Plant
Sensor
Actuator
Controller

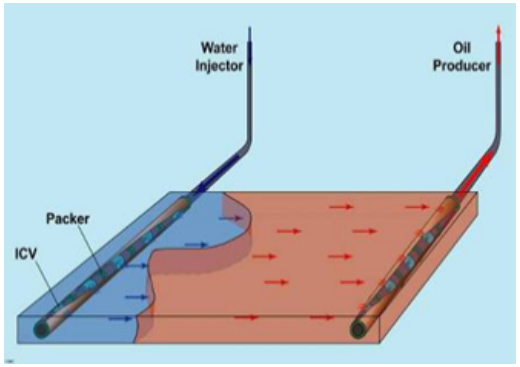


Systems & Control:

Everywhere
Behind the scenes
From high precision to major scale







Departments:

Mechanical Engineering

Electrical Engineering

Universities:

TU Delft Delft University of Technology

TU/e Technische Universiteit Eindhoven University of Technology

UNIVERSITY OF TWENTE.

WAGENINGEN UR For quality of life

4TU.

Systems & Control program overview:

1st year	Core courses 25 EC	Specialization courses 20 EC	Free electives 15 EC
2nd year	Internship 15 EC	Graduation project 45 EC	

Education:

Core courses (25 EC), compulsory:

- Control engineering
- System theory for control
- Modeling dynamics *or* Multibody and non-linear dynamics
- System identification
- Integration project

Specialization courses (20 EC): Choose in consultation with your mentor

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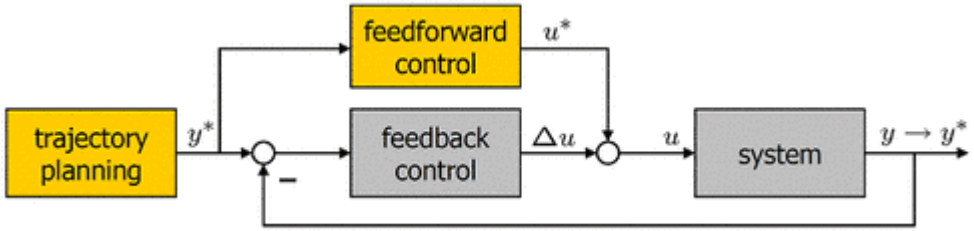

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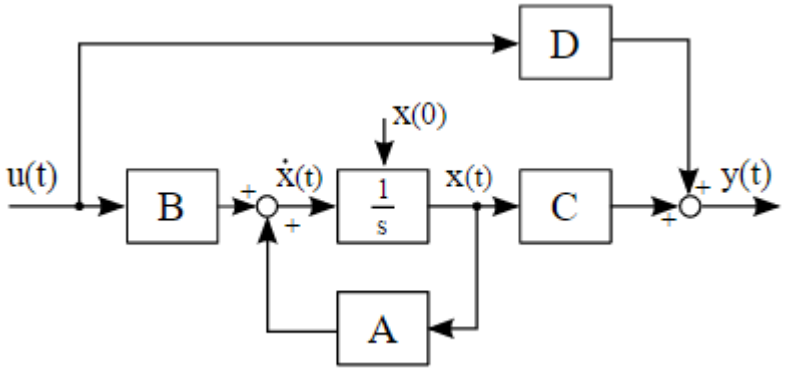
$$\begin{bmatrix}\dot{x}_1\\ \dot{x}_2\end{bmatrix} = \begin{bmatrix}-2 & 0\\ 0 & -1\end{bmatrix}\begin{bmatrix}x_1\\ x_2\end{bmatrix} + \begin{bmatrix}0\\ 1\end{bmatrix} u$$

$$y = \begin{bmatrix}1 & 1\end{bmatrix}\begin{bmatrix}x_1\\ x_2\end{bmatrix}$$



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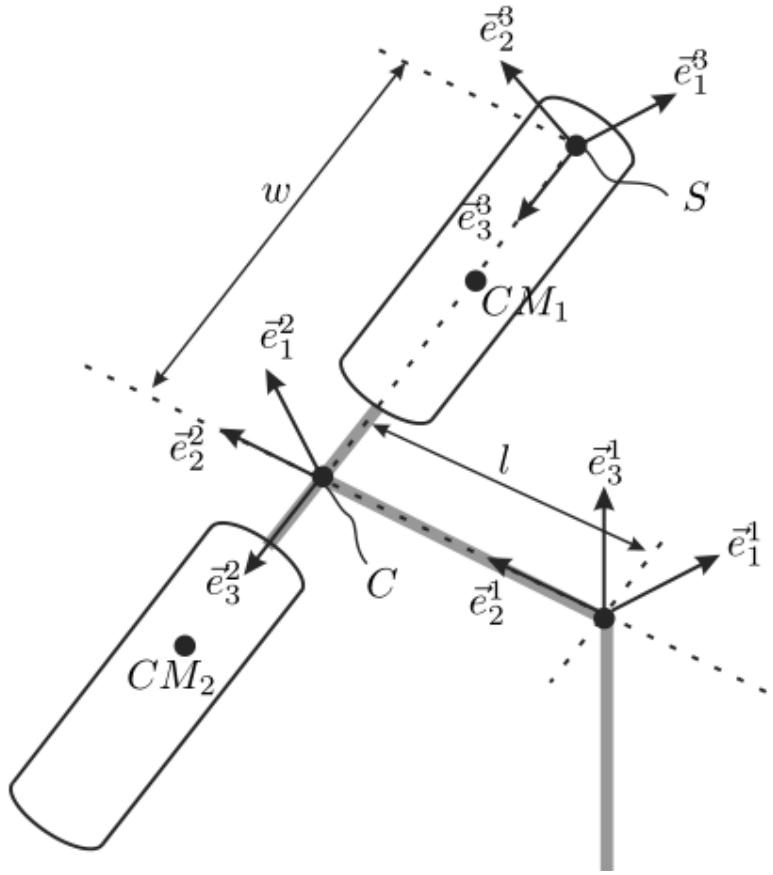

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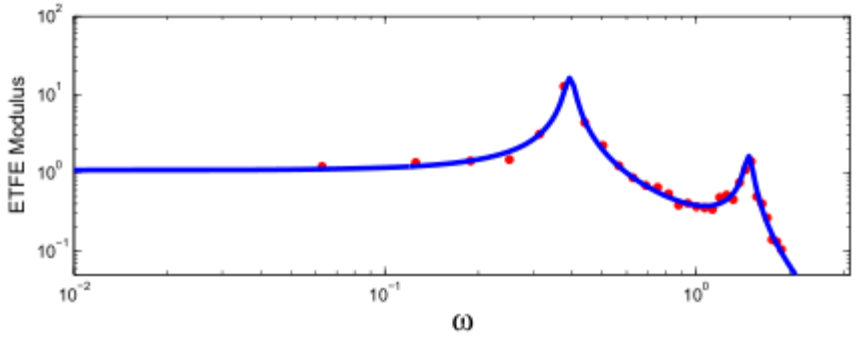

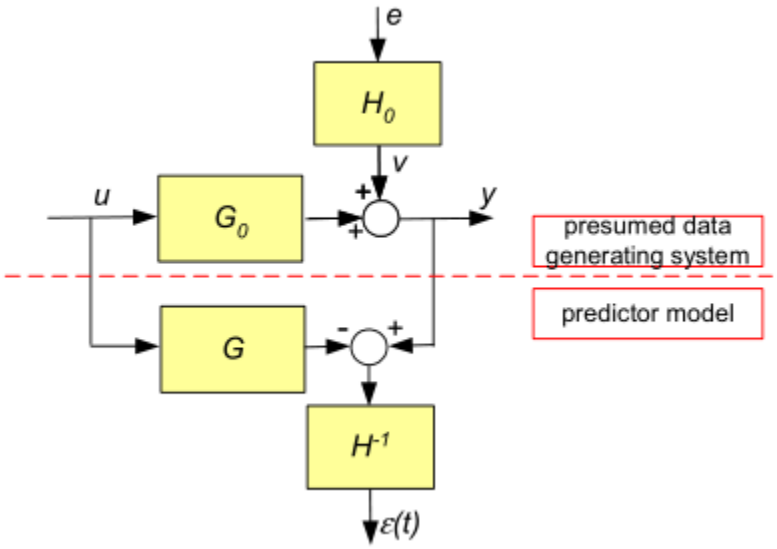

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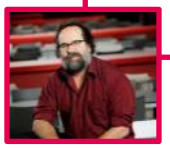
- Curriculum = coherent, in line with specialization, guidance from mentor
- Internship and graduation project: independent work, explore new research questions, within university or in cooperation with industry

Research groups:

- **Control Systems Technology /**
  prof. Steinbuch



high precision and accuracy / hybrid and network control/ nuclear fusion / systems engineering

(fundamental): process control / 3D printing / electrical power systems / dynamic networks

- **Control Systems /**
  prof. Van den Hof

MECHANICAL ENGINEERING DEPARTMENT

ELECTRICAL ENGINEERING DEPARTMENT

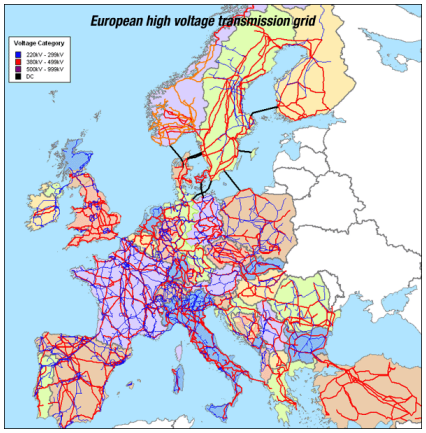
non linear control / automotive / vehicle dynamics / cooperative driving / manufacturing networks

hybrid and electrical driving / electromagnetics / actuator design / power electronics

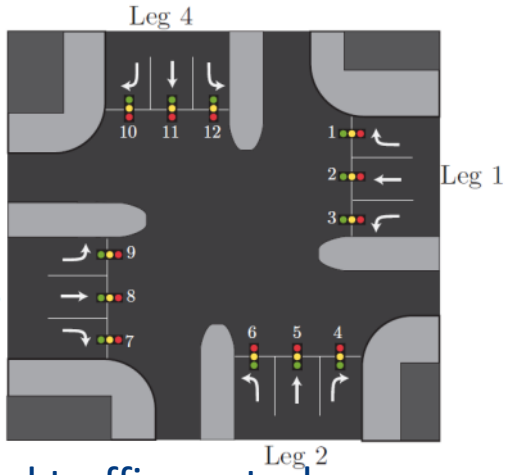
- **Dynamics & Control /**
  prof. Nijmeijer

- **Electro - mechanics and Power Electronics /**
  prof. Lomonova

Project examples:

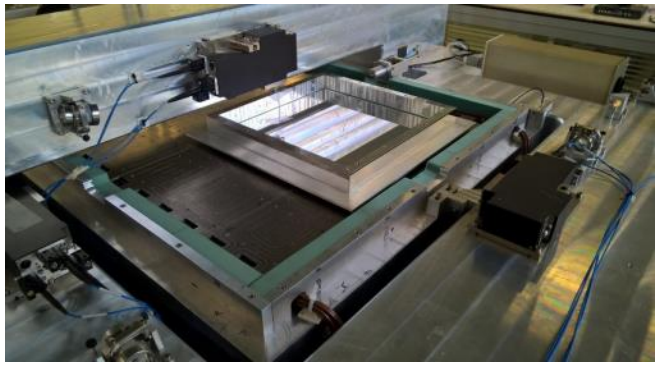


Large-scale process control



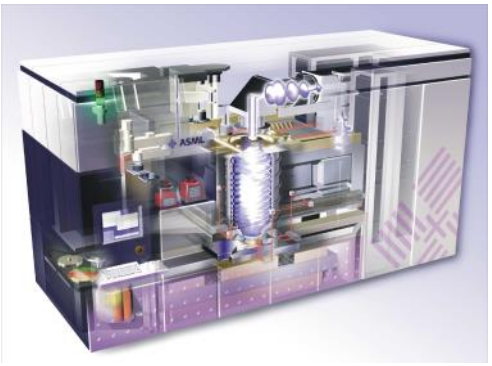
Cooperative vehicles and traffic control

Project examples:



Magnetically levitated planar motor

Active car suspension



Wafer scanner

Cooperative, cure and care robotics

High tech for agriculture

Specialization in Mechanical Engineer research group?

- Only for Mechanical Engineering research groups:
  - Control Systems Technology (Steinbuch)
  - Dynamics & Control (Nijmeijer)
- Popular group
- Quality supervision
- Selection by group based on:
  - CV & Motivation letter
- Expectation: enough capactity for first choice
- Participate in *current* allocation system?
  - **Deadline: May 15** (≥ 160 EC of bachelor)

More info? Check studyguide.tue.nl
Email mastersc@tue.nl

Character of the program

- Not easy!
- Small scale (approx. 50 in year 1)
- Highly motivated peers
- Excellent job opportunities
- Good student evaluations

  NSS ‘15-’16 (1-5 scale)

  Content 4.1

  Lecturers 4.0

  General 4.4

After graduation:

Research:

- PhD
- PDEng (Automotive Systems Design, or…)

Industry:

- Brainport
- High tech industry

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DAF

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ASML

PHILIPS

Contact us!

- **E-mail:** mastersc@tue.nl
- **Website:** www.tue.nl/sc **or** Education Guide pages S&C