



# master

**The systems and control discipline focuses on the modeling of dynamic systems and the design of controllers that make these systems behave in a desired manner by using feedback. While the basic principles of control have been used since ancient times in all kinds of man-made systems such as water clocks, temperature regulators and mechanical systems, the theory of automatic control is relatively young.**

by: prof. dr. Robert Babuska

System and control emerged in the early twentieth century from the need to understand and influence the dynamic behavior of electronic amplifiers. Control theory has made a tremendous progress since then, making impact on virtually all engineering domains. Nowadays, control systems are all around us. They ensure the safe and effective operation of industrial processes, airplanes and cars, they enable consumer electronic devices to operate in a reliable way and help us optimize transportation and communications systems, to name just a few examples.

## NEAR FUTURE

Current control systems, while hidden from view, do their job silently, accurately and reliably. Yet, new applications foreseen in the near future are to bring unprecedented challenges and even more prominent role for control. Robots will leave the well-structured environments of factory floors to assist us in our homes, offices and hospitals. Cars will be equipped with intelligent driver assistance systems improving safety on the road and reducing congestion by communicating and coordinating with other vehicles. Computers will be embedded not only in devices, but also on our bodies, so that, for instance, paralyzed persons will be able to control a wheelchair using only their thoughts.

## FUTURE

Control systems in these and many more novel applications will have to communicate and interact with humans, cope with unanticipated changes in the controlled process or its environment, will be expected to learn from past experience, actively acquire and organize knowledge about the surrounding world and plan its future be-

havior. This will be possible by developing new paradigms within control itself as well as through a tight integration with other disciplines such as artificial intelligence, machine learning or cognitive sciences.


## THE MSc PROGRAM

The MSc program Systems and Control offers an ideal environment for students interested in this rapidly progressing field. Research and teaching within this program addresses generic aspects of control, while the application areas emphasize on the multidisciplinary nature of the field. The combination of solid theoretical basis for the modeling, analysis and design of control systems with the possibility to work on a wide variety of real life problems is highly appreciated both by students, the companies and institutions hiring the graduates of Systems and Control.

## MULTIDISCIPLINARY

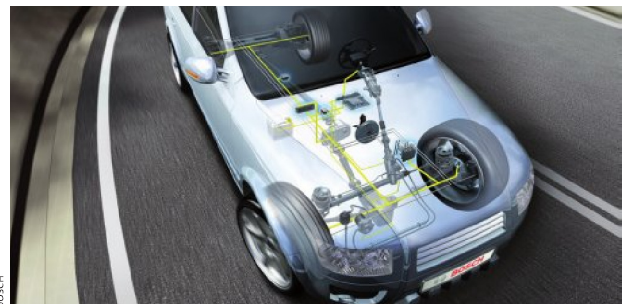
The program brings together students and lecturers from a variety of engineering backgrounds and an immense range of application areas: from microsystems and mechatronics to large-scale industrial production plants; from physical measurement systems and microscopy to transportation and distribution networks; from optimal oil recovery in petroleum reservoirs to autonomous learning systems in robotics.

## CONTACT

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