



University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

SEMINAR

Automotive Systems Control: Classical Problems and New Solutions

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**Dipartimento di Ingegneria Industriale e dell'Informazione
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Aula Seminari ex. Dip. di Informatica e Sistemistica, Piano D

The role of control systems in cars and motorbikes has become more and more central in the last two decades, especially as for the control of vehicle dynamics, which is the basis to develop advanced driver assistance systems (ADAS) such as ABS, ESP, traction control, cruise control, anti-roll prevention systems and active/semi-active suspensions. This seminar will provide an overview of the classical problems in vehicle dynamics control, also briefly discussing the role of sensors and the necessity, in some cases, of designing ad hoc observers. Standard controllers normally adopted by car/motorbike manufacturers will be illustrated and new solutions based on sliding mode control, a powerful advanced robust nonlinear control methodology, will be presented.

Antonella Ferrara received the Laurea Degree in Electronic Engineering in 1987 and the Ph.D. degree in 1992, both from the University of Genova. Since January 2005 she is Full Professor of Automatic Control in the Department of Electrical, Computer and Biomedical Engineering (ECBE) of the University of Pavia. Her research activities are mainly in the area of sliding mode control, with application to automotive control, robotics, traffic control and process control. She has collaborated with the major European ground vehicles manufacturers. She was and is coordinator of research teams in national and European research projects dealing with automotive control. She has authored or co-authored more than 300 papers, one third of which are international journal papers. She was and is Associate Editor of leading scientific journals. She has several roles within the IEEE Control Systems Society among which that of being Chair of the IEEE CSS Women in Control Standing Committee.

Organizer

Prof. Antonella Ferrara

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Seminar in English

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