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SimTech
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Monday
7. Nov. 2011
5 p.m.

Lecture Room:
V 7.03

Universität Stuttgart
Campus Vaihingen
Pfaffenwaldring 7

Peter Sagirow
Distinguished Seminar Series

About the Peter Sagirow Distinguished Seminar Series

With this annual seminar series the Institute for Systems Theory and Automatic Control intends to honor Peter Sagirow and the decisive role he played in the development of the field of control at the University of Stuttgart. Each year a highly distinguished researcher is brought to campus to report on the state of the art, achievements and challenges in the field of systems and control.

System Identification: From Data to Models



Prof. Lennart Ljung

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Abstract

System identification is the art and science of building mathematical models of dynamic systems from observed input-output data. It can be seen as the interface between the real world of applications and the mathematical world of control theory and model abstractions. As such it is an ubiquitous necessity for successful applications.

The area has many facets and there are many approaches and methods. The presentation aims at both giving an overview of the "science" side, i.e. basic principles and result and at illustrating the practical, "art", side of how to approach a real problem.

System identification is a very large topic, with different techniques that depend on the character of the models to be estimated, linear, non-linear, hybrid, nonparametric etc. At the same time, the area can be characterized by a small number of leading principles, e.g. to look for sustainable descriptions by proper trade-offs in the triangle of model complexity, information contents in the data, and effective validation.

About the Speaker

Prof. Lennart Ljung is *the* leading expert in system identification worldwide who has made many seminal contributions to the field over the last 30 years. He received his PhD in Automatic Control from Lund Institute of Technology in 1974. Since 1976 he is Professor of Automatic Control in Linköping, Sweden and is Director of the Strategic Research Center "Modeling, Visualization and Information Integration". He has written several high influential books on System Identification and Estimation and is author of the famous Matlab Toolbox on System Identification. He is an IEEE Fellow, an IFAC Fellow and an IFAC Advisor as well as a member of the Royal Swedish Academy of Sciences (KVA), a member of the Royal Swedish Academy of Engineering Sciences (IVA), an Honorary Member of the Hungarian Academy of Engineering and a Foreign Associate of the US National Academy of Engineering (NAE). He has received honorary doctorates from the Baltic State Technical University in St Petersburg, from Uppsala University, Sweden, from the Technical University of Troyes, France, from the Catholic University of Leuven, Belgium, and from Helsinki University of Technology, Finland. In 2002 he received the Quazza Medal from IFAC (the highest recognition in the field of control), in 2003 the Hendryk W. Bode Lecture Prize from the IEEE Control Systems Society and he was the recipient of the IEEE Control Systems Award for 2007.

Further information:

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