

Einladung zum Vortrag

Bayesian Methods in Control Engineering – history, current activities and future trends

von

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■ **ABSTRACT**

Bayesian theory, due to its mathematical rigor and application flexibility, has attracted increasing interest from both academia and practitioners. The original Bayesian rule, as a single formula, can evolve into pages of long mathematical formulas. Yet the end result after the long derivation provides very meaningful solutions to the practice problems. Although the control community may not be familiar with the term “Bayesian”, it has been unconsciously adopted by control scientists as early as the start of modern control. The most well known application of Bayesian theory in control engineering is Kalman filter which has been widely adopted by the control community. It is now commonly recognized that many control related problems can be formulated under Bayesian framework and readily solved. This presentation will give a historical overview of Bayesian methods in control engineering, current activities, and future trends. These will include Bayesian methods for hybrid system identification, hybrid state estimation, advanced filtering, fault detection & isolation, control performance monitoring & diagnosis, and soft sensors development. Several successful real industrial applications of the Bayesian methods will also be presented.

■ **BIOGRAPHICAL INFORMATION**

Biao Huang (PhD, PEng) is a Professor of Department of Chemical and Materials Engineering at the University of Alberta, a Natural Science and Engineering Research Council of Canada (NSERC)'s Senior Industrial Research Chair, Fellow of Canadian Society of Chemical Engineers (CSCHE), Senior Member of IEEE and American Institute of Chemical Engineers (AIChE). He obtained a PhD degree in Process Control from the University of Alberta, in 1997. He also had MSc degree (1986) and BSc degree (1983) in Automatic Control from the Beijing University of Aeronautics and Astronautics. He is a recipient of Germany's Alexander von Humboldt Research Fellowship, Canadian Chemical Engineer Society's Syncrude Canada Innovation Award, University of Alberta's McCalla and Killam Professorships, Petro-Canada Young Innovator Award, and a Best Paper award from Journal of Process Control. Biao Huang's research interests include: process control, system identification, soft sensors, control performance assessment and diagnosis, fault detection and isolation. Biao Huang is an expert in industrial practice particularly in oil sands industry. His contributions in control loop performance monitoring and diagnostic techniques have enjoyed applications in chemical, petrochemical, oil & gas, mineral processing, and pulp & paper industries worldwide. He is co-author of 3 books and 150 peer-reviewed journal papers, and delivered over 100 presentations in international conferences. He is associate editor of Canadian Journal for Chemical Engineering as well as Control Engineering Practice.

■ **WEITERE INFORMATIONEN**

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