AUTOMATION & CONTROL INSTITUTE
INSTITUT FÜR AUTOMATISIERUNGS- & REGELUNGSTECHNIK

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Einladung zum Vortrag

A Tale of Three Actuators

How Mechanics, Business Models and Position Sensing Affect Different Mechatronic Servo Problems

von

Dr. Danny Abramovitch
Agilent Laboratories
Santa Clara, California

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ABSTRACT

Students studying control problems often learn a lot of wondrous algorithms that impart near mythical properties to the systems that they are applied to. At least this is how it works in theory and simulation. In practice, however, a thorough understanding of the system, the use model, and the market is often far more important than the differences between any two optimization algorithms. Knowing when and where a particular algorithm is useful is typically at the heart of real control problems.

This talk will focus on three servo systems with which the speaker has had considerable experience: hard disks, optical disks, and atomic force microscopes. By examining how the particulars of these three systems affect the use of control algorithms, the speaker will try to extract some general lessons.

BIOGRAPHICAL INFORMATION

Daniel Abramovitch was born in Saskatoon, Saskatchewan and grew up in Tuscaloosa, Alabama. He earned degrees in Electrical Engineering from Clemson (BS) and Stanford (MS and Ph.D.), doing his doctoral work under the direction of Gene Franklin. Upon graduation, and after a brief stay at Ford Aerospace, he accepted a job at Hewlett-Packard Labs, working on control issues for optical and magnetic disk drives for 11 1/2 years. He moved to Agilent Laboratories shortly after the spin off from Hewlett-Packard, where he has spent the last 11 1/2 years working on test and measurement systems.

Danny is a Senior Member of the IEEE and was Vice Chair for Industry and Applications for the 2004 American Control Conference (ACC) in Boston. He is Vice Chair for Workshops at the 2006 ACC in Minneapolis and for Special Sessions at the 2007 ACC in New York. He will be Vice Chair for Industry and Applications for the 2009 ACC in St. Louis, Program Chair for the 2013 ACC, and General Chair of the 2016 ACC.. He has helped organize conference tutorial sessions on topics as varied as disk drives, atomic force microscopes, phase-locked loops, and how business models and mechanics affect control design. He served as the Chair of the IEEE CSS History Committee from 2001 to 2010. Danny is credited with the original idea for the clocking mechanism behind the DVD+RW optical disk format and is co-inventor on the fundamental patent. He was on the team that prototyped Agilent's first 40Gbps Bit Error Rate Tester (BERT) and was able to cite a Douglas Adams book in one of his patents relating to that device. Along with his co-author, Gene Franklin, he was awarded the 2003 IEEE Control Systems Magazine Outstanding Paper Award. His favorite paper remains the one prompted by a question from his then 3-year-old son, which showed that the outrigger was a feedback mechanism that predated the water clock by at least a 1000 years. He currently is doing research on future atomic force microscopes for Agilent.

WEITERE INFORMATIONEN

Univ.-Prof. Dipl.-Ing. Dr.sc.techn. Georg SCHITTER, Institut für Automatisierungs- und Regelungstechnik,
schitter@acin.tuwien.ac.at, Tel. 58801 - 37610