
Electrical & Computer Engineering
S E M I N A R
Louisiana State University

**Trying to Keep it Real: 25 Years of Trying to Get the Stuff I
Learned in Grad School to Work on Mechatronic Systems**

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Abstract—This talk is about the difficulty of making well known and widely accepted advanced textbook control techniques work in an industrial environment, particularly with mechatronic systems that have large numbers of flexible modes. I will go through the methods that fail if done the standard way and the adjustments I have learned to make over the years which get a lot of them to work. I will also go over the methods that seem to work robustly and without much thought in the industrial environment, explaining why they do work. Finally, I will try to show that understanding the differences and commonalities in these two world views allows us to use the principles of one to improve the other.

Bio—Danny Abramovitch 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 19 years working on test and measurement systems. He is currently in Agilent's Mass Spectrometry Division working on improved real-time computational architectures for Agilent's mass spectrometers.

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 was Vice Chair for Workshops at the 2006 ACC in Minneapolis, for Special Sessions at the 2007 ACC in New York, and for Industry and Applications for the 2009 ACC in St. Louis. He was Program Chair for the 2013 ACC and is General Chair of the recent 2016 ACC in Boston. He has helped organize conference tutorial sessions on topics as varied as disk drives, atomic force microscopes, phase-locked loops, laser interferometry, 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 was a Keynote Lecturer at the 2015 Multi-Conference on Decision and Control in Sydney, Australia. His recent work for Agilent was on high speed atomic force microscopes and high precision interferometers. His current work involves improving the real-time control, data collection, and signal processing chain on Agilent's Mass Spectrometers. He is part of the team that introduced the multi-award winning Ultivo Tandem Quad Mass Spectrometer in 2017. He is the holder of over 20 patents and has published over 50 reviewed technical papers.

When: Wednesday, 3 April 2019, 10:30 - 11:30

Where: Room 3316E Patrick F. Taylor Hall

Info: <https://www.lsu.edu/eng/ece/seminar>

