SEMINAR

Center of Excellence in Intelligent Engineering Systems

CEIES
CENTER OF EXCELLENCE IN
INTELLIGENT ENGINEERING SYSTEMS

Speaker: Prof. Maamar Bettayeb

Acting Vice Chancellor for Research and Graduate Studies
University of Sharjah, United Arab Emirates

Distinguished Adjunct Professor
Center of Excellence in Intelligent Engineering Systems
King Abdulaziz University

Professor Maamar Bettayeb received the B.S., M.S., and Ph.D. degrees in Electrical Engineering from University of Southern California, Los Angeles, in 1976, 1978 and 1981, respectively. He worked as a Research Scientist at the Bellaire Research Center at Shell Oil Development Company, Houston, Texas, USA., during 1981/1982. From 1982 to 1988, He directed the Instrumentation and Control Laboratory of High Commission for Research in Algeria. In 1988, He joined the Electrical Engineering Department at King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, until 2000. He has been Professor at University of Sharjah, UAE since August 2000 and is currently the Acting Vice Chancellor for Research and Graduate Studies. He is also currently Distinguished Adjunct Professor at the Center of Excellence in Intelligent Engineering Systems, King Abdulaziz University. He has published over 300 journal and conference papers in the fields of control and signal processing, with applications to power systems, communications, process control, nuclear, chemical and mechanical systems, ultrasonic defect identification and image processing. He has also supervised over 50 M. Sc. and Ph. D. students. He has been involved in national and international accreditations and developed several strategic plans for research and graduate studies. His research interest is in H∞ optimal control, model reduction, signal and image processing, networked control systems, fractional dynamic modeling and control, soft computing, wavelets, renewable energies and engineering education.

Date: Thursday, January 29, 2015

Time: 1:00 PM

Venue: Engineering Building, Second floor,
Room 24C28 (ECE Seminar Room)

Title

**Challenging Problems in Control, Signal Processing, and Image Processing, Part 2:
Applications in Control, Signal and Image Processing**

Abstract

Practical systems we face in engineering today are very complex in nature. Examples include data and image processing systems, power and control systems, heat transfer and diffusion processes, large flexible structures, robot manipulators, vibrations, flow, and transportation systems. Modeling, simplification, approximation and control of these systems are challenging problems to solve.

The speaker will formulate several of these problems and present major attractive approaches for their solutions. Applications to Model Reduction and Rational Approximation of Solar Heat Collectors, Filter design, Harmonics, Interconnects, Speech, Ultrasonic NDE, and Image Restoration and Compression are presented. Powerful recent approaches to the modeling and approximation of large scale systems are overviewed. Several challenging open problems and extensions are also discussed. Overview and Approaches to solve these problems are exposed in Part 1. Some successful applications in Control, Signal and Image Processing are presented in Part 2.

ALL ARE CORDIALLY INVITED