كلية الهندسة
College of Engineering
جامعة قطر QATAR UNIVERSITY

EE Short Course

The Department of Electrical Engineering, cordially invites you, Faculty Members, Researchers and Graduates, to a short Course on

Adaptive Control

By

Dr. K. Khorasani

Date: Wednesday Oct. 23, 2013
Time: 9:00 am - 4:00 pm
Venue: Education College-Room 208
(Included a Coffee Break and a Lunch)

Speaker's Bio:

K. Khorasani received the B.S., M.S., and Ph.D. degrees in Electrical and Computer Engineering from the University of Illinois at Urbana-Champaign in 1981, 1982 and 1985, respectively.
From 1985 to 1988 he was an Assistant Professor at the University of Michigan at Dearborn and since 1988, he has been at Concordia University, Montreal, Canada, where he is currently a Professor and Concordia University Tier I Research Chair in the Department of Electrical and Computer Engineering.
He has authored/co authored over 350 publications and supervised to completion of over 95 Ph.D., Masters, and Post-doctoral fellows. His main areas of research are in nonlinear and adaptive control, intelligent and autonomous control of networked unmanned systems, fault diagnosis, isolation and recovery (FDIR), diagnosis, prognosis, and health management (DPHM), satellites, unmanned vehicles,aerospace systems, neural network applications to pattern recognition, robotics and control, adaptive structure neural networks, and modeling and control of flexible link/joint manipulators.

Abstract

Adaptive techniques in prediction and control are studied. Both continuous-time and discrete-time systems are treated. A rigorous and comprehensive theory of convergence of adaptive algorithms are included. The theory can be applied in a unified manner to both deterministic and stochastic systems, although the course only covers the deterministic systems. A close link between convergence theory and performance of the algorithms in practice is demonstrated. Theoretical and practical aspects of a large class of adaptive algorithms are summarized. Issues of importance for applications such as parametrization, tuning and tracking, robustness to unmodeled dynamics and disturbances as well as different ways of using adaptive control are presented.

Topics to be Covered

Introduction

Parameter Estimation, Least Squares Algorithm

Model Reference Adaptive Systems

Indirect Adaptive Control, Self--Tuning Regulators

Convergence and Robustness Issues

Persistent Excitation

Stability Theory

Adaptive Observers

Robust Adaptive Control