



COLLEGE OF ENGINEERING

SEMINAR ANNOUNCEMENT

“Adaptive Learning Based Control Design for Nonlinear Dynamic Systems under Structured and Unstructured Uncertainties”

Presented by Dr. Hicham Chaoui, SMIEEE

Abstract

Control of nonlinear dynamic systems faces numerous challenges that need to be addressed such as, high nonlinearities, varying operating conditions, structured and unstructured uncertainties, and external disturbances. Nonlinear control techniques depend heavily on precise mathematical system models to provide satisfactory performance, which is a difficult undertaking for complex systems due to severe nonlinearities. On the other hand, computational intelligence based controllers do not have such a limitation, thanks to their mathematical model dependence free characteristic. This seminar discusses latest and future developments of adaptive learning based control strategies for highly complex nonlinear systems with structured (parametric) and unstructured (modeling/disturbance) uncertainties. Application to robotics, motor drives, and energy storage and conversion systems is also illustrated.

About the Speaker

Hicham Chaoui received the B.Sc. degree in electrical engineering from the Institut supérieur du Génie Appliqué (IGA), Casablanca, Morocco, in 1999, the M.A.Sc. degree in electrical engineering, the M.Sc. degree in computer science (with honors), the graduate degree in project management and the Ph.D. degree in electrical engineering (with honors) all from the University of Quebec, Canada, in 2002, 2004, 2007 and 2011, respectively. He is recipient of the best thesis award and the governor general of Canada gold medal award for his doctoral dissertation in 2012. Prior to his academic career, he held various positions in industry such as Vice-President Innovation and Technology Development. He is currently Assistant Professor at Tennessee Technological University, TN, USA and Adjunct Professor at the University of Quebec, QC, Canada. His research interests include adaptive and nonlinear control theory, intelligent control, robotics, mechatronics, electric motor drives, energy storage and management, and FPGA implementation.

Date: Thursday, November 17, 2014

Time: 12 P.M. – 1 P.M.

Bring your own lunch; beverages and snacks to be provided.

Location: Prescott 225