Jointly presents

SEMINAR SERIES ON CHAOS AND SYSTEMS CONTROL

Uncertainty Equivalence Principle
and H-infinity Based Robust Adaptive Control

Prof. Guoxiang Gu
Department of Electrical and Computer Engineering
Louisiana State University

Date and Time: Friday, 1 March 2002, 3:30 pm – 4:30 pm
Venue: Room CD634, Hong Kong Polytechnic University (enter from Core E)
Reception starts at 3:15pm
(Language: English)

Abstract

A novel concept termed uncertainty equivalence principle is proposed to tackle robust adaptive control, which serves to combine H-infinity based robust control with adaptive control. Specifically we propose the following adaptive control algorithm: recursive least-squares (RLS) for adaptive model estimation, and weighted sensitivity minimization plus robust stabilization for adaptive controller design. The algorithm focuses on stable plant models. We show that the proposed adaptive control algorithm admits robust stability and performance asymptotically, if the estimated plant model converges.

About the Speaker

Professor Gu received his MS degree, and PhD degree in Electrical Engineering, from University of Minnesota in 1985, and 1988, respectively. He was a Visiting Assistant Professor in Wright State University from 1988 to 1990. Since 1990 he has been with Louisiana State University, where he is a Professor in Electrical and Computer Engineering. His research interests include modeling, and control of uncertain and nonlinear systems with industrial applications, and digital signal processing with applications to wireless data communications.

Inquiry: Prof. Ron Chen (gchen@ee.cityu.edu.hk) or Prof. Michael Tse (encktse@polyu.edu.hk)