ANNOUNCEMENT

The Center for Advanced Information Technologies is pleased to announce that Professor Eva Wu, Electrical and Computer Engineering Dept. will give a presentation entitled:

“Probing the NASA Generic Transport Aircraft for Real-Time Health Monitoring”

Date: Friday, April 24, 2009  
Time: 1:10 – 2:10 pm  
Location: EB 110  
Contact: (607) 777-4471, dweir@binghamton.edu, yskormin@binghamton.edu

Abstract

In this talk, I will explain the principle of a pulse-compression probing scheme. The scheme is applied to monitoring a NASA Generic Transport Aircraft Model (GTM). The GTM is a high fidelity Simulink model of a dynamically scaled small unmanned aerial vehicle developed by NASA to investigate the behavior of large transport vehicles in upset conditions. As an example, a stuck-at-trim fault of a GTM's control surface is examined. Trim is the condition of level flight with a constant velocity, at which a stuck fault is undetectable by conventional methods that rely on the information of measured control signals and aircraft states. Upon detection of a stuck-fault, a special filter can be activated to estimate the amount of deflection at which the control surface is stuck. This information is then used by the flight control-loop for redistribution of its remaining authorities to compensate the effect of the fault, and to allow the vehicle’s safe maneuver without unrecoverable departure.

Speaker Bio

Prof. Wu is with the Department of Electrical Engineering at Binghamton University. Her research interest is in fault-tolerant control. She is also currently serving on the International Program Committee of the 2009 IFAC (International Federation of Automatic Control) Symposium on Fault Detection, Supervision, and Safety for Technical Processes; the International Program Committee of 2009 American Control Conference; and the Editorial Board of IEEE Transactions on Control System Technology as an Associate Editor.