

# Seminar

## Fall 2011



THE UNIVERSITY OF  
SOUTHERN MISSISSIPPI  
SCHOOL OF COMPUTING

**Title:** Real-time Digital Controller Design  
for Networked Control Systems

**Time & Location:**

2:00pm, Friday, November 18, 2011  
Vislab (Tec 205)

**Speaker:** Prof. Yongpeng Zhang, Ph.D.  
Prairie View A&M University, Texas

**Abstract:** This presentation will focus on the real-time digital controller design for Networked Control System (NCS). NCSs are spatially distributed systems in which communications between sensors, actuators and controllers are realized through a shared digital communication network. Networked control can effectively reduce wiring, and achieve low installation cost, ease of maintenance, and flexibility in reconfiguration. Its advantages are further demonstrated with the ever increasing complexity of control system structures. For the real-time networked control system, a serious challenge is the inevitable and unpredictable delay and data loss due to shared communication channel, which may degrade the performance or even destabilize the system. This research is to integrate control theory, mathematical modeling, embedded system, and cybernetics together to obtain a physical implementation for various applications involving cyber-physical system, power system, etc.