

DEPARTMENT OF MECHANICAL ENGINEERING
Purdue School of Engineering and Technology

FALL 2008 SEMINAR SERIES

Date: Thursday, September 11, 2008

Time: 12:00 pm – 1:00 pm

Room: SL 165

Everyone is invited

**Energy Efficient and Reliable Communication in Wireless Sensor
Networks**

Dr. Yao Liang, CS Department, IUPUI, Indianapolis, IN

Abstract.

One of the most critical challenges in wireless sensor networks (WSNs) is their severe energy constraint. For environmental monitoring WSNs which are often deployed in harsh or even hostile environments such as mountainous areas, hilly watersheds, forests, and oceans, the replacement of batteries for sensor nodes is virtually impossible. The lifetime of WSNs therefore depends on the power consumption of individual sensor nodes. In this talk, I will present our research on developing a novel approach to minimize energy consumption in wireless sensor network for environmental monitoring. I will present a new analytical model as the fundamental framework to systematically explore the temporal correlation in environmental monitoring wireless sensor networks. Simulation results are also provided. The insights and analyses obtained can directly lead to innovative and better design of data gathering protocols for wireless sensor networks to dramatically reduce the energy consumptions in WSNs operated in highly noisy environments.

About the Speaker.

Dr. Yao Liang is currently an Associate Professor in the Department of Computer and Information Science at IUPUI. His research interests include areas of wireless sensor networks, multimedia networks, adaptive network control and resource allocation, quality of service, machine learning, informatics, data management and integration, data mining, data fusion, and information systems. Dr. Liang's research has been funded by NSF and NASA. Dr. Liang received his Ph.D. in Computer Science at Clemson University in 1997. Prior to joining IUPUI, Dr. Liang was on the faculty in the Department of Electrical and Computer Engineering at Virginia Tech. He is a senior member of IEEE, and was a member of IEEE Signal Processing Society Machine Learning Technical Committee from 2004 to 2005.