



## Distinguished Lecture Series

# Dust to Doctors: Wireless Sensor Networks for Home Medical Care

Monday, January 4th, 2010 10:00 am  
Auditorium 106 at new IIS Building



**John A. Stankovic**

**BP America Professor,  
Department of Computer Science,  
University of Virginia**

### Abstract

Wireless sensor networks (WSN) composed of large numbers of small devices (called motes or dust) can self-organize and be used for a wide variety of applications. In particular, these systems can be used to improve the quality of healthcare, be applied in the home, in continuous care retirement communities or in large-scale assisted living facilities, and significantly contribute to longitudinal studies. I will present, AlarmNet, a novel testbed system for health care that uses a two-way flow of data and analysis between front-end body networks, intermediate environmental sensing and communication networks, and back-end context aware protocols that are tailored to residents' individual living patterns. In the back-end, programs have been implemented to determine Circadian Activity Rhythms for patients and perform activity recognition. These programs also infer medical issues such as depression. In this talk I will describe the overall AlarmNet architecture, various front-end (heterogeneous and multi-function) body networks, the intermediate wireless sensor network, and the back-end analysis. Key research issues and solutions addressed include: flexible and evolvable heterogeneous configurations, privacy, robustly detecting falls, and a real-time query system.

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