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Spring 2011 Colloquium
Computer and Information Sciences
Distinguished Lecture Series

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BP America Professor

University of Virginia

Department of Computer Science

*“Dust to Doctors:
Wireless Sensor Networks for Home Medical Care”*

Thursday, February 10, 11am
Wachman Hall 1015D

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 or in large-scale assisted living facilities, and significantly contribute to longitudinal studies. I will present, AlarmNet, a novel system for assisted living and residential monitoring that uses 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, a program has been implemented to infer behaviors and use that information for improved health care. For example, these programs infer medical issues such as depression. In this talk I will describe the overall AlarmNet architecture, various front-end body networks, the intermediate sensor network, and the back-end databases and analysis. Key issues addressed include: flexible and evolvable heterogeneous configurations, privacy, robustly detecting falls, measuring sleep motion and quality, and a real-time query system.

Brief Bio:

Professor John A. Stankovic is the BP America Professor in the Computer Science Department at the University of Virginia. He served as Chair of the department, completing two terms (8 years). He is a Fellow of both the IEEE and the ACM. He won the IEEE Real-Time Systems Technical Committee's Award for Outstanding Technical Contributions and Leadership. He also won the IEEE Distributed Processing Technical Committee's Award for Distinguished Achievement (inaugural winner). He has won four best paper awards in wireless sensor networks research. Professor Stankovic also served on the Board of Directors of the Computer Research Association for 9 years. Before joining the University of Virginia, Professor Stankovic taught at the University of Massachusetts where he won an outstanding scholar award. He was the Editor-in-Chief for the IEEE Transactions on Distributed and Parallel Systems and was a founder and co-editor-in-chief for the Real-Time Systems Journal for 18 years. His research interests are in wireless sensor networks, cyber physical systems, distributed computing, and real-time systems. Prof. Stankovic received his PhD from Brown University.