

College of Engineering Dean's Seminar

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Computer Engineering Division, Department of Electrical & Computer Engineering
IEEE Gainesville Section



TALK: GRAND CHALLENGES FOR WIRELESS SENSOR NETWORKS

DAY/DATE: Thursday, February 16, 2006

TIME: 10:40am-11:30am

LOCATION: NEB 100

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SUMMARY

The technological advances in micro-electro-mechanical systems (MEMS) and wireless communications have enabled the deployment of the small intelligent sensor nodes in homes, workplaces, supermarkets, plantations, oceans, streets, and highways, to monitor the environment. The realization of smart environments to improve the efficiency of nearly every aspect of our daily lives by enhancing the human-to-physical world interaction is one of the most exciting potential sensor network applications utilizing these intelligent sensor nodes. However, this objective necessitates efficient and application specific communication protocols to assure the reliable communication of the sensed event features and hence enable the required actions to be taken by the actors in the smart environment. In this talk, the grand challenges for the design and development of sensor/actor network communication protocols are presented. More specifically, a cross layer module for communication will be presented which eliminates the classical protocol layer approach. Furthermore, underwater sensor networks will also be explained and the grand challenges in that domain will also be highlighted.

BIOGRAPHY OF "IAN F. AKYILDIZ"

IAN F. AKYILDIZ is the Ken Byers Distinguished Chair Professor with the School of Electrical and Computer Engineering, Georgia Institute of Technology and Director of Broadband and Wireless Networking Laboratory. He has published over two-hundred technical papers in journals and conference proceedings. He is the Editor-in-Chief of *Computer Networks* (Elsevier Science) and for the newly launched *AdHoc Networks Journal* (Elsevier Science). Dr. Akyildiz is an IEEE FELLOW (1995) and an ACM FELLOW (1996). He served as a National Lecturer for ACM from 1989 until 1998 and received the ACM Outstanding Distinguished Lecturer Award for 1994. Dr. Akyildiz received the 1997 IEEE Leonard G. Abraham Prize award (IEEE Communications Society) for his paper entitled "Multimedia Group Synchronization Protocols for Integrated Services Architectures" published in the IEEE Journal of Selected Areas in Communications (JSAC) in January 1996. Dr. Akyildiz received the 2002 IEEE Harry M. Goode Memorial award (IEEE Computer Society) with the citation "for significant and pioneering contributions to advanced architectures and protocols for wireless and satellite networking". He also received the 2002 IEEE Best Tutorial Paper award (IEEE Communications Society) for his paper entitled "A Survey on Wireless Sensor Networks" published in the IEEE Communications Magazine in July 2002. This paper was also recently listed on the Communications Society website as one of the ten most popular ComSoc articles viewed online in 2005. Dr. Akyildiz further received the 2003 ACM SIGMOBILE award for his outstanding research contributions to the wireless networking field. His current research interests are in Sensor Networks, Wireless Networks, and Interplanetary Internet.