University of Pavia

Ph.D. Program of Electrical and Electronics Engineering and Computer Science
Ph.D. Program in Microelectronics
Ph.D. Program in Bioengineering and Bioinformatics

SEMINAR

Intra-body sensors and networks

Prof. K.R. Chowdhury

Northestern University, Boston, MA

November 19th, 2015, h 14.00 – 16.00,
Aula seminari ex Dipartimento di Elettronica. Floor D

Abstract: New medical procedures promise continuous patient monitoring and drug delivery through implanted sensors and actuators. When over the air wireless radio frequency (OTA-RF) links are used for intra-body implant communication, the network incurs heavy energy costs owing to absorption within the human tissue. With this motivation, we explore an alternate form of intra-body communication that relies on weak electrical signals, instead of OTA-RF. This seminar will cover the latest advances in the feasibility of this new paradigm for enabling communication between sensors and actuators embedded within the tissue, or placed on the surface of the skin..Topics covered:

- Various non-RF forms of intra-body communication
- Galvanic coupled communication
- Channel models and physical layer design
- Topology management
- Experimental setup, applications

Bio: Kaushik Chowdhury is Associate Professor in the Electrical and Computer Engineering Department at Northeastern University, Boston, MA, USA since 2009. He graduated with B.E. in Electronics Engineering with distinction from VJTI, Mumbai University, India, in 2003. He received his M.S. in Computer Science from the University of Cincinnati, OH, in 2006, and Ph.D. from the Georgia Institute of Technology, Atlanta, GA in 2009. His M.S. thesis was given the outstanding thesis award jointly by the ECE and CS departments at the University of Cincinnati. He received the Best Paper Award at the IEEE ICC Conference in 2009, 2012, 2013, as well as the Best Paper award in the ICNC Conference in 2013. His expertise and research interests lie in wireless cognitive radio ad hoc networks, energy harvesting, and intra-body communication. He is currently an area editor for the Elsevier Ad Hoc and Computer Communications journals, and the Chair for the IEEE Technical Committee on Simulation. He is the recipient of the 2015 NSF CAREER award.

Organizer

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Seminar in English
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