

*The Electrical and Computer Engineering Program presents
ECEN Seminar Series*

Energy Efficiency and Wireless Communication Networks - EARTH Project and the future roadmap

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Lecture Hall 144

Light lunch will be served

Growing demands for data on mobile networks poses new challenges both in spectral and energy efficiency of wireless communication systems. There has been a surge in research activity in the field of energy efficient operation and design of wireless communication networks along with some fundamental studies on the bounds and analytical framework for this important research area. In this presentation we will review the research area in general, identifying the current boundary of knowledge and practice. We will review in detail the used evaluation frameworks and metrics for this research and then follow on with more detailed example scenarios how these frameworks and metrics have been used to evaluate current systems. Link level energy efficiency techniques will be summarised and an overview picture of network level approaches will be given. This will be followed by an outlook for futuristic techniques and ideas that are being pursued by leading researchers and research groups in the world research community for energy efficient design of wireless communications.

Furthermore, the potential of wireless communication has been recognised for improving the energy efficiency of users and individuals through persuasive techniques. In this talk, these dual considerations for making wireless networks energy efficient and then using them for making individual user's behaviour more energy efficient will be summarised and reviewed. Recent research and findings will be presented and discussed.



Dr Muhammad Ali Imran received his M.Sc. (Distinction) and Ph.D. degrees from Imperial College London, UK, in 2002 and 2007, respectively. He is a Reader and an active researcher at the Centre of Communication Systems Research (CCSR) at the University of Surrey, UK. His areas of interests are energy efficiency of wireless communication systems, physical layer communication techniques and fundamental limits of communication channels and systems. He has a good track record of successful international projects and high quality publications as well as excellent teaching credentials. He has published in top journals in the field of communications and has secured the funding of 3.2 million GBP in the last three years. He is a member of CCSR academic team which has recently secured a large grant of over 35 million GBP for a 5G innovation centre and an outdoor cellular testbed at Surrey. He is a senior member of IEEE and a fellow of Higher Education Academy.

FOR MORE INFORMATION:

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