Reducing the Energy Footprint for Wireless and Mobile Communication Systems

Energy efficiency is vital for future sensing and computing systems, in environments ranging from the confines of the home to the open environments in the field. Large-scale energy reduction is crucial to reduce our use of fossil fuels and help the environment, whereby small-scale energy reduction enables reduced size batteries and longer lifetimes for mobile devices. Additionally, future systems will increasingly rely on energy harvesting from renewable energy sources to increase the lifetime of mobile systems. In this talk, we will focus on reducing energy dissipation in sensing, computing and communication, looking at
1) energy efficient protocols and algorithms for wireless sensor networks that enable these networks to meet application quality of service requirements while greatly reducing energy drain;
2) exploiting the processing power provided by the abundant energy efficient smart phones to support large computing tasks with low energy requirements; and
3) efficiently utilizing the varying energy available in energy-harvesting networks using MIMO (multiple-input, multiple-output) communication techniques.
These techniques will help ensure that future systems are both “green” and have increased network lifetimes.

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Her current research interests lie in the area of wireless communications and networking, mobile computing, and multimedia communication. She is a member of N^2 Women and SWE, a Distinguished Scientist of ACM Sigmobile, and a Fellow of the IEEE Communications Society, the IEEE Signal Processing Society, and the IEEE Computer Society.

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