

Sustainable Communication and Communication for Sustainability

Radu Marculescu

Carnegie Mellon University

In this talk we identify communication as a key issue in achieving systems sustainability both in engineered and natural systems. Indeed, either we consider highly integrated multicore platforms for embedded, data center or cloud computing, or biological organisms that communicate at nano-scale, controlling communication turns out to have a direct and profound impact on systems power, thermal, and resilience figures. Consequently, we discuss theoretical foundations of a network-based approach to achieving sustainability, and illustrate its practical implications in green computing and other applications. Taking such an approach is crucial not only for understanding the main properties and overall behavior of many systems at micro- and nano-scale, but also for developing new models and tools suitable for engineering for sustainability.

Bio: Radu Marculescu is a Professor in the Dept. of Electrical and Computer Engineering at Carnegie Mellon University, USA. He received his Ph.D. in Electrical Engineering from the University of Southern California in 1998. He has received several best paper awards in the area of design automation and embedded systems design. He has been involved in organizing several international symposia, conferences, workshops, as well as guest editor of special issues in archival journals and magazines. His research focuses on modeling and optimization of embedded systems, cyber-physical systems, and biological systems. Radu Marculescu is a Fellow of IEEE.