"Perpetual Computing"

Prabal Dutta
University of Michigan
http://www.eecs.umich.edu/~prabal
prabal@eecs.umich.edu

Abstract: Every decade, computers scale in size, power, and deployment density. This talk will explore some of the opportunities and challenges in scaling to the next generation and beyond. Drawing from our experiences in deploying hundreds of energy harvesting sensors, from Rubik's Cube-size devices that draw milliamps to cubic-mm sized "Smart Dust" that draws nanoamps, and many devices in between, this talk will discuss the emerging systems architecture, and articulate some of the hardware and software challenges, of perpetual computing—of intermittently-powered systems that could conceivably last forever.

Bio: Prabal Dutta is an Assistant Professor of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor. He researches the circuits, systems, and software necessary to realize pervasive sensing, computing, and communications at scale and in the service of society. His work has yielded over a dozen hardware and software systems, has won four best paper awards and several design awards, has been directly commercialized by a dozen companies (and indirectly by dozens more), and has been utilized by thousands of researchers and practitioners worldwide. His work has been recognized with an NSF CAREER Award, an Intel Early Career Award, and a *Popular Science* Brilliant Ten Award. He earned a Ph.D. in Computer Science from the University of California, Berkeley in 2009.