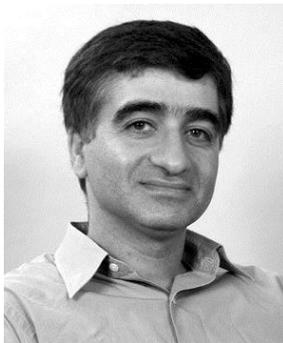




The Information Science & Technology Center

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Colorado State University's  
Information Science and Technology Center (ISTeC)  
*presents two lectures by*



## Dr. Massoud Pedram

Stephen and Etta Varra Professor  
Department of Electrical Engineering  
University of Southern California

### ISTeC Distinguished Lecture

In conjunction with the  
Electrical and Computer Engineering Department and  
Computer Science Department Seminar Series

**“Digital Infrastructure: Reducing Energy Cost and Environmental Impacts of  
Information Processing and Communications Systems”**

Monday October 21, 2013  
Reception with refreshments: 10:30 am  
Lecture: 11:00 am – 12:00 noon  
Location: Morgan Library, Event Hall



Electrical and Computer Engineering Department Special Seminar *Sponsored by ISTE C*

**“Designing Energy-Efficient Information Processing Systems”**

Monday October 21, 2013  
Lecture: 2:00 – 3:00 pm  
Location: Lory Student Center Rm. 224-226

ISTeC (Information Science and Technology Center) is a university-wide organization for promoting, facilitating, and enhancing CSU's research, education, and outreach activities pertaining to the design and innovative application of computer, communication, and information systems. For more information please see [ISTeC.ColoState.edu](http://ISTeC.ColoState.edu).

## **Abstracts:**

### **Digital Infrastructure: Reducing Energy Cost and Environmental Impacts of Information Processing and Communications Systems**

Modern society's dependence on information and communication infrastructure (ICI) is so deeply entrenched that it should be treated on par with other critical lifelines of our existence, such as water and electricity. As is the case with any true lifeline, ICI must be reliable, affordable, and sustainable. Meeting these requirements (especially sustainability) is a continued critical challenge, which will be the focus of my talk. More precisely, I will provide an overview of information and communication technology trends in light of various societal and environmental mandates followed by a review of technologies, systems, and hardware/software solutions required to create a sustainable ICI.

### **Designing Energy-Efficient Information Processing Systems**

The semiconductor industry is facing some extraordinary challenges, including process and aging-induced variability of nano-devices as well as excessive power dissipation and heat generation in VLSI circuits and systems. In order for the industry to continue to expand and prosper, it is critical to address these challenges heads on. It is against this backdrop that I provide examples of some techniques used to improve the energy efficiency of VLSI circuits and systems. More precisely, my talk will include a discussion of the following topics: (i) Logical-effort-based optimization of FinFET gates operating in multiple voltage regimes and (ii) Power/performance models of multi-core server systems and an online CPU consolidation algorithm.

## **Speaker Biography:**

Massoud Pedram is the Stephen and Etta Varra Professor in the EE department at the University of Southern California. He received his B.S. degree in EE from Caltech in 1986 and PhD in EECS from UC-Berkeley in 1991. He is a recipient of the 1996 Presidential Faculty Fellows Award, a Fellow of the IEEE, an ACM Distinguished Scientist, and the Editor-in-Chief of the ACM Transactions on Design Automation of Electronic Systems and the IEEE Journal on Emerging and Selected Topics in Circuits and Systems. Dr. Pedram's research focuses on energy-efficient computing, energy storage systems, low power electronics and design, and computer aided design of VLSI circuits and systems. Dr. Pedram and his research group have published more than 450 papers, and received six Conference and two IEEE Transactions Best Paper awards for their work.

**To arrange a meeting with the speaker, please contact Sudeep Pasricha ([sudeep@colostate.edu](mailto:sudeep@colostate.edu)) 970-491-0254**