

**THE CHINESE UNIVERSITY OF HONG KONG***Seminar jointly presented by***Department of Information Engineering
and****Institute of Environment, Energy and Sustainability****SPOT: A Smart Personalized Office Thermal Control System****by****Professor Srinivasan Keshav****University of Waterloo****Canada****Date : 16 August, 2013 (Friday)****Time : 10:30am – 11:30am****Venue : Room 1009, William M.W. Mong Engineering Building
The Chinese University of Hong Kong***Abstract*

Heating, Ventilation, and Air Conditioning (HVAC) accounts for about half of the energy consumption in buildings. HVAC energy consumption can be reduced by changing the indoor air temperature setpoint, but changing the setpoint too aggressively can overly reduce user comfort. We have therefore designed and implemented SPOT: a Smart Personalized Office Thermal control system that balances energy conservation with personal thermal comfort in an office environment. SPOT relies on a new model for personal thermal comfort that we call the Predicted Personal Vote (PPV) model. This model quantitatively predicts human comfort based on a set of underlying measurable environmental and personal parameters. SPOT uses a set of sensors, including a Microsoft Kinect, to measure the parameters underlying the PPV model, then controls heating and cooling elements to dynamically adjust indoor temperature to maintain comfort. Based on a deployment of SPOT in a real office environment, we find that SPOT can accurately maintain personal comfort despite environmental fluctuations and allows a worker to balance personal comfort with energy use.

Joint work with Peter Xiang Gao.

Biography

S. Keshav received a Ph.D. in Computer Science from the University of California, Berkeley in 1991. After five years as a researcher at AT&T Bell Laboratories, he became an Associate Professor at Cornell University in 1996 and was an Alfred Sloan Fellow from 1997 to 1999. In 1999 he temporarily left academia to co-found Ensim Corporation and GreenBorder Technologies Inc.; both were based in Silicon Valley. He has been an Associate Professor, and is now a Professor, at the University of Waterloo and holds both a Canada Research Chair and the Cisco Chair in Smart Grid. Keshav is Chair of ACM SIGCOMM, past editor of Computer Communication Review, a co-inventor on 25 US patents, and the author of two graduate textbooks on computer networking.

**** ALL ARE WELCOME ****

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