

THURSDAY
JANUARY 29, 2004

Scaife Hall Auditorium
Room 125

4:00 PM
Refreshments—3:30 PM



Vivek Goyal

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Vivek Goyal received undergraduate degrees from the University of Iowa in 1993 and the Ph.D. degree in electrical engineering from the University of California, Berkeley, in 1998. After graduate school, he was a Member of Technical Staff in the Mathematics of Communications Research department of Bell Laboratories—where he had the fortune to work with Dr. Jelena Kovacevic—and then, a Senior Research Engineer for Digital Fountain. He has just joined the Massachusetts Institute of Technology as an Assistant Professor. His research interests include source coding theory, signal representation, and practical, robust network content delivery.

Dr. Goyal is a member of Phi Beta Kappa, IEEE, SIAM, and ACM. In 1998, he received the Elisha Jury Award of the University of California, Berkeley, awarded to a graduate student or recent alumnus for outstanding achievement in systems, communications, control, or signal processing. He was also awarded the 2002 IEEE Signal Processing Society Magazine Award. He serves on the IEEE Signal Processing Society's Image and Multiple Dimensional Signal Processing Technical Committee.

For more information:

<http://www.ece.cmu.edu/seminar/index.php>

Jelena Kovacevic, ECE Seminar Host
jelenak@cmu.edu

DENOISING, WITH A SIDE OF FRAMES, LIGHT ON THE STATS

Wavelet thresholding is a powerful tool for denoising natural images and other signals that are piecewise smooth. One can arrive at wavelet thresholding from certain statistical models for wavelet coefficients, but also from the modeling of signals through sparseness.

There are (at least) two ways to progress beyond basic wavelet thresholding. An approach that we appreciate, but do not take ourselves, is to improve the statistical modeling of images. We instead look at

- a) extensions of wavelet-based techniques to frames; and
- b) how to combine (iterate with) basic thresholding operators to obtain improved denoising.

The level of the talk is intended to accommodate a broad audience.

This is joint work with Alyson Fletcher and Kannan Ramchandran.