

Department of Computer Science and Engineering

*Distinguished Speakers Series Presents*

**Shree K. Nayar, Computer Science Department  
Columbia University**



**Computational Cameras: Redefining the Image**

In this talk, we will first present the concept of a computational camera. It is a device that embodies the convergence of the camera and the computer. It uses new optics to select rays from the scene in unusual ways, and an appropriate algorithm to process the selected rays. This ability to manipulate images before they are recorded and process the recorded images before they are presented is a powerful one. It enables us to experience our visual world in rich and compelling ways. We will show computational cameras that can capture wide angle, high dynamic range, multispectral, and depth images. Finally, we will explore the use of a programmable light source as a more sophisticated camera flash. We will show how the use of such a flash enables a camera to produce images that reveal the complex interactions of light within objects as well as between them.

Biography: Shree K. Nayar received his PhD degree in Electrical and Computer Engineering from the Robotics Institute at Carnegie Mellon University in 1990. He is currently the T. C. Chang Professor of Computer Science at Columbia University. He co-directs the Columbia Vision and Graphics Center. He also heads the Columbia Computer Vision Laboratory (CAVE), which is dedicated to the development of advanced computer vision systems. His research is focused on three areas; the creation of novel cameras, the design of physics based models for vision, and the development of algorithms for scene understanding. His work is motivated by applications in the fields of digital imaging, computer graphics, and robotics.

**Thursday, November 20, 2008**

**3:30–4:30 PM**

**University at Buffalo North Campus - Student Union 106/201**

This talk is free and open to the public - Refreshments for attendees after the talk in 224 Bell Hall  
For more information, please call 645-3180