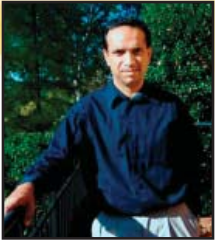


EECS Seminar Series



Dr. Dinesh Manocha

*Phi Delta Theta/Mason Distinguished Professor of Computer Science,
University of North Carolina at Chapel Hill*

“Bringing Realism to Virtual Environments: Sound and Crowds”

Wednesday, February 11, 2009 • 2:00 p.m. • Harris Center (HEC) 101

The realism of a computer simulated system and virtual environment depends heavily on three main components: graphics, behavior, and sound. Thanks to four decades of research in modeling, rendering, and advances in VLSI technologies for graphics hardware, today’s virtual environments systems are able to render near photorealistic images at interactive rates .

In order increase the sense of immersion, the recent trend has been on adding human-like behavior and multisensory displays. These include simulation of virtual avatars that almost behave like humans, real-time physical simulation of rigid and deformable motion, and sound rendering. In this talk, we give an overview of our work on real-time simulation of heterogenous crowds, motion planning, sound synthesis and propagation. These include new techniques for multi-agent simulation, directing crowd behavior and geometric acoustics. We will describe the use of multi-core CPUs and many-core GPUs to perform real-time simulation and demonstrate their application to computer games, online virtual worlds such as Second Life, virtual prototyping of CAD models, virtual cityscapes, and computational acoustics.

DR. DINESH MANOCHA

Dinesh Manocha is currently the Phi Delta Theta/Mason Distinguished Professor of Computer Science at the University of North Carolina at Chapel Hill. He received his Ph.D. in Computer Science at the University of California at Berkeley 1992. He received Junior Faculty Award in 1992, Alfred P. Sloan Fellowship and NSF Career Award in 1995, Office of Naval Research Young Investigator Award in 1996, Honda Research Initiation Award in 1997, and Hettleman Prize for Scholarly Achievements at UNC Chapel Hill in 1998. He has also received 10 best paper & panel awards at the ACM SuperComputing, ACM Multimedia, IEEE Visualization, ACM Solid Modeling, Pacific Graphics, IEEE VR, CAD and Eurographics Conferences.

His research has been sponsored by ARO, DARPA, DOE, Ford, Honda, Intel, Disney, Microsof, NSF, ONR and RDECOM. He has published more than 260 papers in leading conferences and journals on computer graphics, geometric and solid modeling, robotics, symbolic and numeric computation, virtual environments and computational geometry. He has also served as a program committee member and program chair for more than 50 conferences in these areas. He has also served in the editorial boards of many leading journals.