Calit2 UC Irvine Division and
Donald Bren School of Information & Computer Sciences
Present the

2005 RESCUE Distinguished Lecture Series

DFuse and MediaBroker: System support for sensor-based distributed computing

Dr. Umakishore Ramachandran

http://www.cc.gatech.edu/~rama

Professor, College of Computing
Georgia Tech

Umakishore Ramachandran received his Ph. D. in Computer Science from the University of Wisconsin, Madison in 1986, and is currently a Professor in the College of Computing at the Georgia Institute of Technology. His fields of interest include parallel and distributed systems, computer architecture, and operating systems. Currently, he is leading an NSF-ITR funded project investigating the programming idioms and runtime systems for a distributed sensing infrastructure. He is the recipient of an NSF PYI Award in 1990, the Georgia Tech doctoral thesis advisor award in 1993, the College of Computing Outstanding Senior Research Faculty award in 1996, the College of Computing Dean's Award in 2003, and the College of Computing William “Gus” Baird Teaching Award in 2004.

Friday, November 4, 2005

Refreshments served at 10:45 a.m. with talk to follow at 11:00 a.m.

Calit2 Room 2006

Sponsored by Professor Ramesh Jain

That the future of information technology will be dominated by invisible or pervasive computing is a belief that is being shared by several research groups. We focus on an important problem in this space, namely, efficient system support for the distributed heterogeneous computing elements that make up this environment. We address the interactive, dynamic, and stream-oriented nature of this application class and develop appropriate system support. The DFuse framework provides a data fusion API along with an algorithm enabling application directed energy-aware role assignment to the nodes of a sensor network. The MediaBroker framework supports type-aware data transport with capabilities for data transformations and type extension. These abstractions have been implemented on top of D-Stampede distributed programming system. In this talk I will present elements of the D-Stampede programming system and the DFuse and MediaBroker frameworks. I will also present preliminary results of the system support we have built so far both from a programming ease as well as a performance standpoint. These system abstractions enable rapid prototyping of several pervasive computing applications ranging from the control systems inside automobiles and aircrafts, industry automation, transportation, and surveillance.

For additional information on this series, contact Quent Cassen, (949) 824-1741 or cassen@uci.edu