DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF HOUSTON
FALL SEMINAR 2011

WHEN: **FRIDAY, OCTOBER 28, 2011**
WHERE: **PGH 232**
TIME: **11:00 AM**

SPEAKER: Dr. Sandeep Sen, Indian Institute of Technology

Host: Dr. Rakesh Verma

TITLE: The Update Complexity of Selection and Related Problems

ABSTRACT:
We present a framework for computing with input data specified by intervals, representing uncertainty in the values of the input parameters. To compute a solution, the algorithm can query the input parameters that yield more refined estimates in form of sub-intervals and the objective is to minimize the number of queries.

The previous approaches address the scenario where every query returns an exact value.
Our framework is more general as it can deal with a wider variety of inputs and query responses and we establish interesting relationships between them that have not been investigated previously.
Although some of the approaches of the previous restricted models can be adapted to the more general model, we require more sophisticated techniques for the analysis and we also obtain improved algorithms for the previous model.

We address selection problems in the generalized model and show that there exist 2-update competitive algorithms that do not depend on the lengths or distribution of the sub-intervals and hold against the worst case adversary. We also obtain similar bounds on the competitive ratio for the MST problem in graphs.

Joint work with Manoj Gupta and Yogish Sabharwal

BIO:
Dr. Sandeep Sen is a professor of computer science and engineering in IIT Delhi and a former Head of Dept. He obtained his PhD from Duke University, an MS from UC Santa Barbara and Btech from IIT Kharagpur. His research interests are in the areas of efficient algorithms, randomized techniques and computational geometry. Prof Sen is a Fellow of the Indian Academy of Science