Distinguished Lecturer Series

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Local computation algorithms

Abstract: Consider a setting in which inputs to and outputs from a computational problem are so large, that there is not time to read them in their entirety. However, if one is only interested in small parts of the output at any given time, is it really necessary to solve the entire computational problem? Is it even necessary to view the whole input? We survey recent work in the model of *local computation algorithms* which for a given input, supports queries by a user to values of specified bits of a legal output. The goal is to design local computation algorithms in such a way that very little of the input needs to be seen in order to determine the value of any single bit of the output. In this talk, we describe a number of problems for which sub-linear time and space local computation algorithms have been developed.

Ronitt Rubinfeld: Received her PhD at the University of California, Berkeley, and is currently on the faculties at MIT and Tel Aviv University. Her research focuses on sub-linear time algorithms for big data sets.

12:00-14:00 on Wednesday November 26, 2014—Room 202, Alon Bldg (37/202)

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