



香港中文大學
The Chinese University of Hong Kong

Institute of Theoretical Computer Science and Communications

Theory Seminar Series

Sorting on Complete Bipartite Graphs

By

Professor Andrew Yao, CUHK

Professor Xiaoming Sun, Tsinghua University, Beijing

July 21, 2009 (Tuesday)

3:00pm - 5:00pm

Rm. 121, Ho Sin Hang Engineering Building, CUHK

Abstract:

Let $X=\{x_1, x_2, \dots, x_n\}$ and $Y=\{y_1, y_2, \dots, y_n\}$ be two sets of interleaving numbers. That is, their sorted order is of the form $x_{\{i_1\}} < y_{\{j_1\}} < x_{\{i_2\}} < y_{\{j_2\}} < \dots$ (or starting with $y_{\{j_1\}}$) for some unknown permutations i_1, i_2, \dots and j_1, j_2, \dots of $1, 2, \dots, n$. We wish to sort these numbers using only comparisons of the form $x_k < y_m$. We show that there exists a deterministic algorithm that uses $O(n (\log n)^c)$ comparisons. Previously, it was known that there exist randomized algorithms using $O(n \log n)$ comparisons. This problem is a special case of the sorting problem on graphs.

***** ALL ARE WELCOME *****

Host & Enquiries : Institute of Theoretical Computer Science and Communications Tel: 2696 1257