

香港中文大學 The Chinese University of Hong Kong

Institute of Theoretical Computer Science and Communications

# ITCSC-CSE Joint Seminar

## **Differentially Private Release and Learning of Threshold Functions**

By **Mr. Mark Bun** Harvard University

May 26, 2016, Thursday

11:00 am - 12:00 noon

Room 1009, 10/F, William M. W. Mong Engineering Building, CUHK

### Abstract:

The line of work on differential privacy is aimed at enabling rich statistical analyses on data while provably protecting individual-level privacy. The last decade of research has shown that, at least in principle, a number of fundamental statistical tasks are compatible with differential privacy. However, privacy-preserving analyses often require additional complexity over their non-private counterparts: for instance, in terms of the number of data samples one needs to collect in order to get accurate results. In this talk, we will examine the price of privacy for several basic tasks involving one-dimensional threshold functions. We give the first non-trivial lower bounds on the sample complexity of performing these tasks with differential privacy. Surprisingly, our techniques are closely related to classic results in distributed computing, and bolster connections between privacy and combinatorics. Joint work with Kobbi Nissim, Uri Stemmer, and Salil Vadhan.

### **Biography:**

Mark Bun is a PhD student in the Theory of Computation group at Harvard, advised by Salil Vadhan. Previously, he was an undergraduate at the University of Washington. His research interests are in computational complexity and the theory of data privacy, drawing inspiration from cryptography and learning theory.

### \*\*\*\*\* ALL ARE WELCOME \*\*\*\*\*

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