NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S  S E M I N A R

**Title:** **Data Publishing with Differential Privacy: the Cases of Histograms and Graph Statistics**

Speaker: Assistant Professor Xiaokui Xiao
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Venue: Executive Classroom, COM2-04-02

Chaired by: Dr Chan Chee Yong, Associate Professor, School of Computing
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Abstract:

Publishing information while preserving privacy is a problem of growing importance in the era of big data. A common practice to address the problem is to anonymize the data by removing personal identifiers, but it has been demonstrated (in several recent incidents) to be vastly inadequate in terms of privacy protection. This led to a body of research on privacy preserving data publishing and resulted in the proposal of differential privacy, which offers a strong privacy guarantee by injecting noise into the data published.

In this talk, I will review the framework of differential privacy, and will describe two techniques that achieve differential privacy while minimizing the amount of noise required. The first technique is designed for the publication of hierarchical histograms, and it comes with a simple but effective optimization that makes it much more resilient to skewed data than existing solutions. The second technique tackles the release of graph statistics, and its key contribution is a new scheme of noise injection that exploits the characteristics of input data to improve the accuracy of the information released.

Biodata:

Xiaokui Xiao is an assistant professor at the Nanyang Technological University (NTU), Singapore. His research focuses on data privacy and scalable data management. He received his PhD degree from the Chinese University of Hong Kong, and he was a postdoctoral associate at the Cornell University before joining NTU.