

Thomas J. Watson School of Engineering and Applied Science

Department of Computer Science

COLLOQUIUM

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EB N-22

12 Noon – 1:00 pm

“PRESERVING PRIVACY IN DATA CUBES”

ABSTRACT

Data cube is one of the most popular data models for decision support systems. However, answering data cube queries with insufficient security scrutiny may disclose sensitive information in underlying data. Such inappropriate disclosures can be caused by not only unauthorized accesses but also inferences using legitimate queries. Existing security countermeasures either ignore the inferences or inflict prohibitive performance penalty in detecting the inferences.

In the first part of this talk, I will introduce a novel lattice-based inference control method for data cubes. Unlike most existing methods, we prevent complex inferences instead of detecting them. This novel approach enables us to support generic aggregation functions and sensitivity metrics, making our method broadly applicable. It also removes the need for constantly auditing queries and thus reduces the complexity of inference control to a practical level. In the second part of the talk, I will give a brief overview of my recent work on vulnerability analysis and intrusion detection.

Biography:

Lingyu Wang is a Ph.D. candidate in Information Technology at George Mason University where he is being advised by Sushil Jajodia. Since 2000, he has been a Research Assistant in the Center for Secure Information Systems (CSIS). His main research interests are information security and privacy. He holds a M.E. from Shanghai Jiao Tong University and a B.E. from Shen Yang Institute of Aeronautic Engineering in China.