



**Spring 2008 CIS Colloquium Series**

## **Moving Objects Databases**

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### **Abstract**

With the rapid developments in positioning technologies and wireless communications, tracking of continuously moving objects has become feasible in terms of technology and implementation cost. However, this recent development poses new challenges to traditional database systems since they have not been designed to support high update load due to object agility, predictive and spatio-temporal based query processing. In this talk, we address three important issues in moving objects databases: indexing, querying and clustering.

As for the indexing, we design a solution that enables the B+-tree to efficiently manage moving objects. Our proposed index structure can be easily integrated into existing commercial database management systems in which its base structure, the B+-tree, is well supported. With the aid of the advanced indexing techniques, we are able to support complex queries like density queries. In particular, we have defined and solved a particular type of density query which reports all evidence of dense regions. As there are more and more moving object applications, people start studying the data collected from these applications and try to exploit knowledge of object movement for purposes such as targeted sales. Therefore, we proposed a new scheme that is capable of incrementally clustering moving objects. This proposal employs a notion of object dissimilarity that considers object movement across a period of time, and it employs clustering features that can be maintained efficiently in incremental fashion.

### **Bio**

Dan Lin is currently a postdoc at Purdue University, studying with Prof. Elisa Bertino. She received her Ph.D. in Computer Science from the National University of Singapore in 2007, and her B.S. in Computer Science from Fudan University in China. Her main research interests lie in database systems and information security. Her current research includes geographical information systems, spatial-temporal databases, location privacy, and access control policies.

*Location: 4<sup>th</sup> Floor Conference Room (Wachman 447)*

*Time: 3-4 PM, Wednesday, January 30, 2008*

*Refreshments will be served!*