Verification of Continuous Queries on Data Streams

In this talk I am going to discuss the problem of continuous query verification for data stream applications. In particular, I am going to present randomized data synopses that can be used to verify the correctness of group-by/aggregation queries over very high speed data streams. These synopses have constant space overhead (of only a few words), constant or logarithmic update time and arbitrary small probability of failure that decreases exponentially with the size of the synopsis. In addition, I am going to discuss query authentication techniques for range and aggregation queries on data streams. These techniques can be used for different purposes including trust management in a data stream outsourcing environment and testing the correctness of data stream management systems software.

Joint work with Ke Yi, Feifei Li, Marios Hadjieleftheriou and Divesh Srivastava.

Bio:

George Kollios is an Associate Professor in the Computer Science Department at Boston University in Boston, Massachusetts. He received his Diploma in Electrical and Computer Engineering in 1995 from the National Technical University of Athens, Greece; and the M.Sc. and Ph.D. degree in Computer Science from Polytechnic University, New York in 1998 and 2000 respectively. His research interests include spatio-temporal databases and data mining, database security, multimedia indexing, and approximation algorithms for data management. He is the recipient of an NSF CAREER Award and a best paper award. He served in many program committees for database and data mining conferences including VLDB, ACM SIGMOD, ACM SIGKDD, and ICDE. He is an Associate Editor of the ACM Transactions of Database Systems and the IEEE Transactions of Knowledge and Data Engineering. He is a member of ACM and IEEE Computer Society.