



The Center for Control, Dynamical Systems, and Computation
University of California at Santa Barbara
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Presents

Novel Challenges in the Management of Data Streams

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Abstract:

In this talk I will discuss recent results related to the extracting of useful and concise information from data streams. This work is motivated by the problem of detecting fraud in Internet advertising networks, where Internet advertisers pay Internet publishers to display advertisements on their Web sites and drive traffic to the advertisers from surfer's clicks. We describe the advertising network model, and discuss the issue of fraud that is an integral problem in such setting. We propose using streaming algorithms on aggregate data to accurately detect fraud online, preserve surfers' privacy, and reduce database load, while not altering the industry model. We also discuss how the imminent ubiquity of Chip Multi-Processor (CMP) architectures requires that the proposed algorithms adapt to exploit the parallelism of such architectures. We therefore propose an efficient and scalable framework for parallelizing frequency counting, frequent elements and top-k queries over data streams. Time permitting, I will discuss some novel approaches to the anonymization of social network graphs for data mining.

About the Speaker:

Amr El Abbadi is currently Professor and Chair of the Computer Science Department at University of California, Santa Barbara. He received his B. Eng. in Computer Science from Alexandria University, Egypt, and received his Ph.D. in Computer Science from Cornell University in August 1987. He has served as area editor for Information Systems: An International Journal, and as editor of Information Processing Letters (IPL). He has also served as program chair of the International Conference on Very Large Data Bases (VLDB), and in various capacities in the major database and distributed systems conferences. He was also elected to serve as a board member of the VLDB Endowment from 2002--2008. He has visited for extended periods the University of Campinas in Brazil, IBM Almaden Research Center, the Swedish Institute of Computer Science in Stockholm, Sweden and IRISA at the University of Rennes in France. In 2002-03, Prof. El Abbadi was director of the University of California, Education Abroad Center at the American University in Cairo. In 2007, Prof. El Abbadi received the UCSB Senate Outstanding Mentorship Award. Prof. EL Abbadi's main research interests and accomplishments have been in understanding and developing basic mechanisms for supporting distributed information management systems, including databases, digital libraries, peer-to-peer systems, and spatial databases.
