

# Contents

<b>Data Stream Management: A Brave New World</b> . . . . .	1
Minos Garofalakis, Johannes Gehrke, and Rajeev Rastogi	
<b>Part I Foundations and Basic Stream Synopses</b>	
<b>Data-Stream Sampling: Basic Techniques and Results</b> . . . . .	13
Peter J. Haas	
<b>Quantiles and Equi-depth Histograms over Streams</b> . . . . .	45
Michael B. Greenwald and Sanjeev Khanna	
<b>Join Sizes, Frequency Moments, and Applications</b> . . . . .	87
Graham Cormode and Minos Garofalakis	
<b>Top-<math>k</math> Frequent Item Maintenance over Streams</b> . . . . .	103
Moses Charikar	
<b>Distinct-Values Estimation over Data Streams</b> . . . . .	121
Phillip B. Gibbons	
<b>The Sliding-Window Computation Model and Results</b> . . . . .	149
Mayur Datar and Rajeev Motwani	
<b>Part II Mining Data Streams</b>	
<b>Clustering Data Streams</b> . . . . .	169
Sudipto Guha and Nina Mishra	
<b>Mining Decision Trees from Streams</b> . . . . .	189
Geoff Hulten and Pedro Domingos	
<b>Frequent Itemset Mining over Data Streams</b> . . . . .	209
Gurmeet Singh Manku	

<b>Temporal Dynamics of On-Line Information Streams . . . . .</b>	221
Jon Kleinberg	
<b>Part III Advanced Topics</b>	
<b>Sketch-Based Multi-Query Processing over Data Streams . . . . .</b>	241
Alin Dobra, Minos Garofalakis, Johannes Gehrke, and Rajeev Rastogi	
<b>Approximate Histogram and Wavelet Summaries of Streaming Data . . . . .</b>	263
S. Muthukrishnan and Martin Strauss	
<b>Stable Distributions in Streaming Computations . . . . .</b>	283
Graham Cormode and Piotr Indyk	
<b>Tracking Queries over Distributed Streams . . . . .</b>	301
Minos Garofalakis	
<b>Part IV System Architectures and Languages</b>	
<b>STREAM: The Stanford Data Stream Management System . . . . .</b>	317
Arvind Arasu, Brian Babcock, Shivnath Babu, John Cieslewicz, Mayur Datar, Keith Ito, Rajeev Motwani, Utkarsh Srivastava, and Jennifer Widom	
<b>The Aurora and Borealis Stream Processing Engines . . . . .</b>	337
Uğur Çetintemel, Daniel Abadi, Yanif Ahmad, Hari Balakrishnan, Magdalena Balazinska, Mitch Cherniack, Jeong-Hyon Hwang, Samuel Madden, Anurag Maskey, Alexander Rasin, Esther Ryvkina, Mike Stonebraker, Nesime Tatbul, Ying Xing, and Stan Zdonik	
<b>Extending Relational Query Languages for Data Streams . . . . .</b>	361
N. Laptev, B. Mozafari, H. Mousavi, H. Thakkar, H. Wang, K. Zeng, and Carlo Zaniolo	
<b>Hancock: A Language for Analyzing Transactional Data Streams . . . . .</b>	387
Corinna Cortes, Kathleen Fisher, Daryl Pregibon, Anne Rogers, and Frederick Smith	
<b>Sensor Network Integration with Streaming Database Systems . . . . .</b>	409
Daniel Abadi, Samuel Madden, and Wolfgang Lindner	
<b>Part V Applications</b>	
<b>Stream Processing Techniques for Network Management . . . . .</b>	431
Charles D. Cranor, Theodore Johnson, and Oliver Spatscheck	
<b>High-Performance XML Message Brokering . . . . .</b>	451
Yanlei Diao and Michael J. Franklin	
<b>Fast Methods for Statistical Arbitrage . . . . .</b>	473
Eleftherios Soulas and Dennis Shasha	

<b>Adaptive, Automatic Stream Mining</b> . . . . .	499
Spiros Papadimitriou, Anthony Brockwell, and Christos Faloutsos	
<b>Conclusions and Looking Forward</b> . . . . .	529
Minos Garofalakis, Johannes Gehrke, and Rajeev Rastogi	



<http://www.springer.com/978-3-540-28607-3>

Data Stream Management

Processing High-Speed Data Streams

Garofalakis, M.; Gehrke, J.; Rastogi, R. (Eds.)

2016, VII, 537 p. 103 illus., 16 illus. in color., Hardcover

ISBN: 978-3-540-28607-3