Dennis Shasha — biographical sketch

Education

1977	B.S.	Yale University
1980	M.S.	Syracuse University (overlapped work at IBM Data Systems Division)
1984	Ph.D.	Harvard University

Positions

1984– Assistant Professor, Associate Professor, and Full Professor of Computer Science
Courant Institute of Mathematical Sciences
New York University

1993– Co-Editor-in-Chief (with Matthias Jarke) of *Information Systems*
Publisher: Elsevier

1991– Database tuning, design, and pattern discovery consulting for Bell Labs, Telcordia, Novell, finance, gaming, and biotech companies.

Publications Most Closely Related to the Proposed Project

1. "StatStream: Statistical Monitoring of Thousands of Data Streams in Real Time" Yunyue Zhu and Dennis Shasha, VLDB 2002.
2. "Query by Humming - in Action with its Technology Revealed" Yunyue Zhu, Dennis Shasha, and Xiaojian Zhao, ACM SIGMOD 2003.
3. "Efficient Elastic Burst Detection in Data Streams," Yunyue Zhu and Dennis Shasha, ACM KDD 2003.
4. "AQuery: Query Language for Ordered Data, Optimization Techniques, and Experiments," Alberto Lerner and Dennis Shasha, VLDB 2003.
5. *Fast Discovery in Massive Time Series*, Dennis Shasha and Yunyue Zhu Springer-Verlag, June 2004, in press.

Other Significant Publications

1. "A gene expression map of the Arabidopsis root" Kenneth Birnbaum, Dennis E. Shasha, Jean Y. Wang, Jee W. Jung, Georgina M. Lambert, David W. Galbraith, and Philip N. Benfey *Science*, Dec 12 2003: 1956-1960
2. "Trait-To-Gene: A Computational Method for Predicting the Function of Uncharacterized Genes," Mitchell Levesque, Dennis Shasha, Wook Kim, Michael G. Surette, and Philip N. Benfey, *Current Biology* 2003, vol. 13, pp. 129-133.
3. "Using Combinatorial Design to Study Regulation by Multiple Input Signals. A Tool for Parsimony in the Post-Genomics Era," Dennis Shasha, Andrei Kouranov, Laurence Lejay, Michael Chou, and Gloria Coruzzi, *Plant Physiology*, Dec. 2001 127(4):1590-1594.
4. "Building secure file systems out of Byzantine storage," David Mazieres and Dennis Shasha, Principles of Distributed Computing, 2002, pp. 108-117.
5. *Database Tuning: principles, experiments, and troubleshooting techniques*, Dennis Shasha and Philippe Bonnet, Morgan Kaufmann Publishers, June 2002, ISBN 1-55860-753-6, Paper, 464 Pages.

Synergistic Activities

Much of my work has to do with providing software for tree matching and searching, graph searching, and time series analysis. The software is available from http://www.cs.nyu.edu/cs/faculty/shasha/papers/papers.html. Other synergistic activities have mostly to do with conveying the ways in which computer scientists think. (i) Write monthly puzzle column for Scientifc American as well as a three puzzle books detailing the adventures of Dr. Ecco, the latest of which is called *Dr. Ecco's Cyberpuzzles: 36 puzzles for hackers and other mathematical detectives*. (ii) Wrote book: *Out of Their Minds: The Lives and Discoveries of 15 Great Computer Scientists, (with C. Lazere)* to interest people in the thought patterns of our field. (iii) Advise the New York Hall of Science on exhibits.

List of Collaborators or Potential Collaborators

I have collaborated with the following people during the last 48 months (or may collaborate with them due to my series editorship at Oxford for Genomics and Bioinformatics and Information Systems) in addition to those listed in the publications list: Michael Rabin, Charles Cantor, David Botstein, Lee Hood, Raju Kucherlapati, Michael Ashburner, Minoru Kanehisa, Nicole Bidoit-Tollu, Ricardo Baeza-Yates, Klaus R. Dittrich, Yannis Ioannidis, Matthias Jarke, Gottfried Vossen, Maurizio Lenzerini, Peri Loucopoulos, Patrick O'Neil, Felipe Carino Jr., Nick Koudas, Masatoshi Yoshikawa, Kenneth A. Ross, Bettina Kemme, and Amr El Abbadi.

Names of Graduate and Post-Graduate Advisors and Advisees

Nathan Goodman was my dissertation advisor. The following lists my advisees (their graduation year, doctoral dissertation title, and current affiliation are in parentheses): Kaizhong Zhang (1989, *The Editing Distance Between Trees: Algorithms and Applications*, Full Professor at the University of Western Ontario, Canada), Theodore Johnson (1990, *The Performance of Concurrent Data Structure Algorithms*, Research scientist at AT&T Laboratories in Florham Park), Jose Perez-Carballo (1990, *Design and Implementation of HyTeK: A Knowledge-Based Hypertext System*, Assistant Professor at Rutgers, New Brunswick), Jason Tsong-Li Wang (1991, *Query Optimization in Database and Information Retrieval Systems*, Full Professor at the New Jersey Institute of Technology, Newark), Vladimir Lanin (1991, *Semantically-Based Concurrent Data Structure Algorithms*, Member of Technical Staff at a startup company), Brian Anderson (1991, *Persistent LINDA: Design and Implementation of a System to Add Transactions to LINDA*, Technical lead at a startup company in California), John Turek (1991, *Algorithms for Robust Parallel Computation*, Manager at IBM Research, Hawthorne), Steve Rozen (1993, *Automating Physical Database Design: An Extensible Approach*, Research Scientist at the Whitehead Institute, MIT), Gilad Koren (1993, *Competitive On-Line Scheduling for Overloaded Real-Time Systems*, Professor at Natanyu College, Israel), Karpjoo Jeong (1995, *PLinda 2.0: Fault Tolerant Parallel Computation on Idle Workstations*, Professor at Konkuk University, Korea), Bin Li (1998, *Free Parallel Data Mining*, Vice President at Citibank, New York), Peter Wyckoff (1998, *Fault Tolerant Parallel Computing on Networks of Non-Dedicated Workstations*, Research Scientist at Yahoo), Peter Piatko (1998, *Thinksheet: A Tool for Information Navigation*, Research Scientist at SAIC), David Tanzer (2000, *Queryable Expert Systems*, Current Position: start-up. Rosalba Giugno (2003, Graphgrep) *Searching Algorithms and Data Structures for Combinatorial, Temporal and Probabilistic Databases* Current position: Post-doc, University of Catania. Alberto Lerner (2003) *Querying Ordered Data with AQuery* Current position: Researcher, IBM T. J. Watson Research Center. Yunyue Zhu (2003) *High Performance Discovery in Time Series: techniques and case studies*

Mailing Address

Professor Dennis Shasha, Department of Computer Science, Courant Institute of Mathematical Sciences, New York University, 251 Mercer Street, New York, NY 10012 (shasha@cs.nyu.edu).

Richard John Cole – biographical sketch

Education

1978	B.A.	Oxford University, Mathematics
1980	M.S.	Cornell University, Computer Science
1982	Ph.D.	Cornell University, Computer Science

University Positions

1982–	Assistant Professor, Associate Professor, and Full Professor of Computer Science Courant Institute of Mathematical Sciences New York University
1994–2000	Chair, Computer Science Department, NYU
1998	ACM Fellow
2002	Member of editorial board: *SIAM Journal of Computing*

Publications Most Closely Related to the Proposed Project

1. "Verifying candidate matches in sparse and wildcard matching," Richard Cole and Ramesh Hariharan, STOC 2002: 592-601
2. "Dictionary matching and indexing with errors and don't cares," Richard Cole, Lee-Ad Gottlieb, and Moshe Lewenstein, Submitted for publication
3. "Exponential Structures for Efficient Cache-Oblivious Algorithms," Michael A. Bender, Richard Cole, Rajeev Raman, ICALP 2002: 195-207
4. "The Average Case Analysis of Partition Sorts" Richard Cole and David Kandathil Submitted for publication.
5. "Approximate String Matching: A Simpler Faster Algorithm." Richard Cole, Ramesh Hariharan, SIAM J. Comput. 31(6): 1761-1782 (2002)

Other Significant Publications

1. "Tight bounds on the complexity of the Boyer–Moore string matching algorithm," Richard Cole, *SIAM Journal on Computing*, 23(1994), 1075–1091
2. "Parallel merge sort" Richard Cole, *SIAM Journal on Computing*, 17(1988), 770-785
3. "On the dynamic finger conjecture for splay trees. Part II: the proof." Richard Cole, *SIAM Journal on Computing*, 29(2000), 44-85.
4. "Pricing network edges for heterogeneous selfish users" Richard Cole, Yevgeniy Dodis, Tim Roughgarden STOC 2003: 521-530
5. "A fast algorithm for computing Steiner edge connectivity" Richard Cole, Ramesh Hariharan STOC 2003: 167-176

Synergistic Activities

Educational material: description plus animation of binary search trees and splay trees. See www.cs.nyu.edu/algvis.

List of Collaborators or Potential Collaborators

Amihood Amir, Michael Bender, Eric Demaine, Yevgeniy Dodis, Martin Farach-Colton, Zvi Galil, Lee-Ad Gottlieb, Piotr Indyk, Ramesh Hariharan, David Kandathil, Moshe Lewenstein, Bruce Maggs, Bud Mishra, Kirsten Ost, Kunsoo Park, Ely Porat, Rajeev Raman, Therese Pzzytycha, Tim Roughgarden, Wajciech Rytter, Jeannette Schmidt, Alan Siegel, Stefan Schirra, Ramesh Sitaraman, Mikhal Thorup, T. Lecroq, W. Plandowski, Manal Mohamed, W. F. Smyth, Lee Yang, and Naila Rahman.

Co-editors at Siam Journal on Computing: Bernard M. Chazelle, David A. Eppstein, Steven Fortune, Michael L. Fredman, Harold N. Gabow, Oded Goldreich, R.L. Graham, Vassos Hadzilacos, Neil Immerman, A. Karlin, Ker I. Ko, S. Rao Kosaraju, Ming Li, John C. Mitchell, Rajeev Motwani, Prabhakar Raghavan, Vijaya Ramachandran, Michael Saks, David B. Shmoys, Peter Shor, Igor Shparlinksi, Janos Simon, Madhu Sudan, Eva Tardos, Eli Upfal, Moshe Y. Vardi, Umesh V. Vazirani, David P. Williamson, and Mihalis Yannakakis

Mailing Address

Professor Richard Cole, Department of Computer Science, Courant Institute of Mathematical Sciences, New York University, 251 Mercer Street, New York, NY 10012 (shasha@cs.nyu.edu).