

Dennis E. Shasha – Curriculum Vitae

Education

- 1984 Ph.D. Harvard University in applied mathematics
Dissertation Advisor: N. Goodman
- 1980 M.Sc. Syracuse University (overlapped work at IBM Data Systems Division)
- 1977 B.Sc. Yale University

Academic Positions

- 1995– Professor of Computer Science
Courant Institute of Mathematical Sciences
New York University
251 Mercer Street, New York, New York 10012
telephone: 212-998-3086, email: shasha@cs.nyu.edu, fax: 212-995-4123
web: <http://cs.nyu.edu/cs/faculty/shasha/index.html>
- 1990–1995 Associate Professor of Computer Science
Courant Institute of Mathematical Sciences
New York University
- 1984–1990 Assistant Professor of Computer Science
Courant Institute of Mathematical Sciences
New York University
- 1991–1992, 1998–1999, 2006–2007
Invited Professor at INRIA
Roquencourt, France
- 2014 ACM Fellow
- 2015-2019 INRIA International Chair

Industrial Positions

- 1991– Database tuning and design consulting
Wall Street investment banks, Internet gaming, and biotech.
Primary clients: Morgan-Stanley, JP Morgan, Interactive Imaginations, and
Union Bank of Switzerland. Also TRW, NCR, Bull, Bellcore, and
the RATP (Paris rapid transit). Lastminute.com. Relational systems mainly.

- 1995–2000 Database Research Collaboration
Lucent Bell Laboratories and Bell Communication Research
- 1987–1995 AT&T Bell Laboratories, Unix System Laboratories, and Novell
Consulting work on transaction processing (concurrency control and recovery) and future UNIX kernel development.
- 1977–1980 IBM Data Systems Division
Hardware and microcode design of arithmetic, interrupt, and processor-to-channel communication for the IBM 3090 central processor.
Also responsible for self-diagnosing circuit design.

Pro Bono

- 1987–1991 Ellis Island Restoration Commission
Technical consultant (pro bono work) for the design of the Immigrant Database Management System.
- 2003– Distinguished Science Advisor, New York Hall of Science
one of 20, including James D. Watson, Benoit Mandelbrot, and Rosalyn Yalow

Doctoral Students Supervised

1. Kaizhong Zhang, (1989; pattern recognition)
The Editing Distance Between Trees: algorithms and applications
Current Position: Full Professor of Computer Science at the University of Western Ontario (with tenure).
2. Theodore Johnson (1990; performance analysis)
The Performance of Concurrent Data Structure Algorithms
Current Position: Research scientist at ATT Laboratories.
3. Jose Perez-Carballo (1990; text databases)
Design and Implementation of HyTeK: a Knowledge-based Hypertext System Current Position: Assistant Professor at Rutgers.
4. Tsong-Li Wang (1991; database query processing)
Query Optimization in Database and Information Retrieval Systems
Current Position: Full Professor at the New Jersey Institute of Technology, Newark (with tenure).
5. Vladimir Lanin (1991; concurrent data structures)
Semantically-based Concurrent Data Structure Algorithms Current Position: member of technical staff at Google, Israel.

6. Brian Anderson (1991; parallel transaction-based processing)
Persistent LINDA: design and implementation of a system to add transactions to LINDA Current Position: Chief Technical Officer, Consilient.
7. John Turek (1991; robust concurrent computation)
Algorithms for robust parallel computation. Current Position: Department Group Manager, next generation Web. IBM T. J. Watson Research Center.
8. Steve Rozen (1993: data structure selection for database systems),
Automating Physical Database Design: An Extensible Approach Current Position: Professor at Duke-National University of Singapore Graduate Medical School
9. Gilad Koren (1993: real time scheduling),
Competitive On-Line Scheduling for Overloaded Real-Time Systems Current Position: Professor at Natanyu College in Israel.
10. Karpjoo Jeong (1995: robust parallel computation),
(1995, *PLinda 2.0: Fault Tolerant Parallel Computation on Idle Workstations*) Current Position: Assistant Professor
Department of Computer Science and Engineering
Konkuk University
Mojin-Dong 93-1, Kwangjin-Ku
Seoul 133-701, Korea
11. Bin Li (1998: parallel data mining on networks of workstations),
(1998, *Free Parallel Data Mining* Current Position: Vice President
Citibank
New York, New York.
12. Peter Wyckoff (1998: parallel fault tolerance),
(1998, *Fault Tolerant Parallel Computing on Networks of Non-Dedicated Workstations*
Current Position: Data warehousing group at facebook.com
13. Peter Piatko (1998: complex document presentation and management)
(1998, *Thinksheet: a tool for information navigation*
Current Position: Research Scientist at SIAC Research.
14. David Tanzer(2000: efficient querying of Thinksheet expert systems)
(2000, *Queryable Expert Systems*
Current Position: Wall Street mathematical programmer.
15. Rosalba Giugno (2003)
Searching Algorithms and Data Structures for Combinatorial, Temporal and Probabilistic Databases Assistant Professor, University of Catania.

16. Alberto Lerner (2003)
Querying Ordered Data with AQuery Technical staff, Google, Inc.
17. Yunyue Zhu (2003)
High Performance Discovery in Time Series: techniques and case studies
Trading system builder in finance.
18. Aristotle Tsirigos (2005)
Pattern Discovery for Hypothesis Generation in Biology Current position:
Researcher at IBM.
19. Xiaojian Zhao (2006)
High Performance Algorithms for Multiple Streaming Time Series Current
position: finance
20. Zhihua Wang (2006)
Time Series Matching: a Multi-filter Approach Current position: finance
21. Tyler Neylon (2006)
Sparse Solutions for Linear Prediction Problems Current position: founder
of start-up
22. Xin Zhang (2006)
Fast Algorithms for Burst Detection Current position: finance
23. Chris Poultney (2010)
Structure Prediction and Visualization in Molecular Biology Current po-
sition: post-doc in bioinformatics at NYU
24. Huang-Wen Chen (2010)
*Machine Learning Approaches to Gene Duplication and Transcription Reg-
ulation* Current position: post-doc in bioinformatics at Franklin Medical
School
25. Eric Hielscher (2013)
Locality Optimization for Data Parallel Programs Current position: sys-
tem programmer at Google, Inc.
26. Alex Rubinsteyn (2013)
Parakeet: Runtime compiler for an array-oriented subset of Python Cur-
rent position: Research Scientist at Mt Sinai Hospital.
27. Noah Youngs (2014) co-advised with Richard Bonneau
*Positive-Unlabeled Learning in the Context of Protein Function Predic-
tion* Current position: Research scientist at the Simons Foundation and
founder of a data science/machine learning startup.

28. Roy Lowrance (2015) co-advised with Yann LeCun
Predicting the Market Value of Single-Family Residences Current position: Managing director of NYU Center for Data Science.
Current position: Research scientist at the Simons Foundation and founder of a data science/machine learning startup.
29. Tian Jiang (2016) *Adaptive Geometric Search for Protein Design*
Current position: Facebook Research

Publications

This list does not include:

1. submissions,
2. technical reports superseded by publications

Journal Publications

1. "Crowdsourcing Thousands of Specialized Labels: a Bayesian active training approach," M. Servajean; A. JOLY; D. Shasha; J. Champ; E. Pacitti, in IEEE Transactions on Multimedia , vol.PP, no.99, pp.1-1 doi: 10.1109/TMM.2017.2653763
2. "An expanded evaluation of protein function prediction methods shows an improvement in accuracy" Genome Biology201617:184 DOI: 10.1186/s13059-016-1037-6 7 September 2016 one of over 100 authors (for algorithmic contributions)
3. "Synthetic RNAs for gene regulation: design principles and computational tools." A. Lagana', D. Shasha, C. M. Croce. Front Bioeng Biotechnol 2014. doi: 10.3389/fbioe.2014.00065. December, 2014.
4. "Negative Example Selection for Protein Function Prediction: The NoGO Database" Noah Youngs, Duncan Penfold-Brown, Richard Bonneau, Dennis Shasha PLOS Computational Biology, June 12, 2014DOI: 10.1371/journal.pcbi.1003644 <http://www.ploscompbiol.org/article/info:doi/10.1371/journal.pcbi.1003644>
5. "miR-Synth: a computational resource for the design of multi-site multi-target synthetic miRNAs" Alessandro Lagana, Mario Acunzo, Giulia Romano, Alfredo Pulvirenti, Dario Veneziano, Luciano Cascione, Rosalba Giugno, Pierluigi Gasparini, Dennis Shasha, Alfredo Ferro and Carlo Maria Croce Nucleic Acids Research, March 13 2014 doi: 10.1093/nar/gku202
6. "GRAPES: A Software for Parallel Searching on Biological Graphs Targeting Multi-Core Architectures" Rosalba Giugno, Vincenzo Bonnici, Nicola Bombieri, Alfredo Pulvirenti, Alfredo Ferro, Dennis Shasha PLOS One, doi: <http://www.plosone.org/article/info>

7. "Gene regulatory networks in plants: learning causality from time and perturbation" Gabriel Krouk, Jesse Lingeman, Amy Marshall Colon, Gloria Coruzzi and Dennis Shasha *Genome Biology*, June 2013
8. "Parametric Bayesian Priors and Better Choice of Negative Examples Improve Protein Function Prediction" Noah Youngs, Duncan Penfold-Brown, Kevin Drew, Dennis Shasha, Richard Bonneau *Bioinformatics* 2013; doi: 10.1093/bioinformatics/btt110 <http://bit.ly/11niyxr>
9. "miR-EdiTAr: A database of predicted A-to-I edited miRNA target sites" Alessandro Lagan, Alessio Paone, Dario Veneziano, Luciano Cascione, Pierluigi Gasparini, Stefania Carasi, Francesco Russo, Giovanni Nigita, Valentina Macca, Rosalba Giugno, Alfredo Pulvirenti, Dennis Shasha, Alfredo Ferro and Carlo M. Croce *Bioinformatics* 2012
10. "Nitrogen economics of root foraging: Transitive closure of the nitrate-cytokinin relay and distinct systemic signaling for N supply vs. demand." Sandrine Ruffel, Gabriel Krouk, Daniel Ristova, Dennis Shasha, Kenneth Birnbaum, and Gloria Coruzzi, *Proc U.S. National Academy of Science* November 8, 2011
11. "Rational design of temperature-sensitive alleles using computational structure prediction." Christopher S. Poultney, Glenn L. Butterfoss, Michelle R. Gutwein, Kevin Drew, David Gresham, Kristin C. Gunsalus, Dennis E. Shasha, Richard Bonneau. *PLoS ONE* 6(9): e23947. doi:10.1371/journal.pone.0023947
12. "The proteome folding project: proteome-scale prediction of structure and function" Kevin Drew, Patrick Winters, Glenn L. Butterfoss, Viktors Berstis, Keith Uplinger, Jonathan Armstrong, Michael Riffle, Eric Schweighofer, Bill Braverman, David R. Goodlett, Trisha N. Davis, Dennis Shasha, Lars Malmstrom, and Richard Bonneau August 8, 2011, doi: 10.1101/gr.121475.111 *Genome Res.* 2011.
13. "Predictive network modeling of the high-resolution dynamic plant transcriptome in response to nitrate," Gabriel Krouk, Piotr Mirowski, Yann LeCun, Dennis E Shasha and Gloria M Coruzzi *Genome Biology* 2010, 11:R123 doi:10.1186/gb-2010-11-12-r123 Published: 23 December 2010
14. "Estimation of genome-wide redundancy in *Arabidopsis thaliana*," Huang-Wen Chen, Sunayan Bandyopadhyay, Dennis E. Shasha, and Kenneth D. Birnbaum accepted, *BMC Evolutionary Biology* 2010, 10:357; doi:10.1186/1471-2148-10-357
15. "Fast Elastic Peak Detection for Mass Spectrometry Data Mining," X. Zhang, D. Shasha, Y. Song and J. T. L. Wang, *IEEE Transactions on Knowledge and Data Engineering*, Issue 99. November 29, 2010, doi: 10.1109/TKDE.2010.238

16. "SING: Subgraph search In Non-homogeneous Graphs" Raffaele Di Natale , Alfredo Ferro , Rosalba Giugno , Misael Mongiovi , Alfredo Pulvirenti and Dennis Shasha BMC Bioinformatics 2010, 11:96doi:10.1186/1471-2105-11-96 <http://www.biomedcentral.com/1471-2105/11/96>
17. "VirtualPlant: a software platform to support system biology research" Manpreet S. Katari, Steve D. Nowicki, Felipe F. Aceituno, Damion Nero, Jonathan Kelfer, Lee Parnell Thompson, Juan M. Cabello, Rebecca S. Davidson, Arthur P. Goldberg, Dennis E. Shasha, Gloria M. Coruzzi, and Rodrigo A. Gutierrez, *Plant Physiology* 152:500-515 (2010)
18. "miRo: a miRNA knowledge base" A. Lagana, S. Forte, A. Giudice, M. R. Arena, P. L. Puglisi, R. Giugno, A. Pulvirenti, D. Shasha, A. Ferro Database: The Journal of Biological Databases and Curation, Oxford University Press, 2009 doi: 10.1093/database/bap008
19. "A Systems Approach Uncovers Restrictions for Signal Interactions Regulating Genome-wide Responses to Nutritional Cues in Arabidopsis" Gabriel Krouk, Daniel Tranchina, Laurence Lejay, Alexis A. Cruikshank, Dennis Shasha, Gloria M. Coruzzi, Rodrigo A. Gutierrez PLOS Computational Biology March 2009, volume 5, issue 3
20. "GraphClust: A Method for Clustering Databases of Graphs" Diego Rerforgiato, Rodrigo Gutierrez, Dennis Shasha *Journal of Information and Knowledge Management (JIKM)* Volume: 7, Issue: 4 (December 2008) Page 231 - 241 <http://www.worldscinet.com/cgi-bin/details.cgi?id=jsname:jikm&type=current>
21. "Revelation on Demand", Nicolas Anciaux, Mehdi Benzine, Luc Bouganim, Philippe Pucheral and Dennis Shasha, *Distributed and Parallel Databases Journal*, vol 25, issue 1-2 (april 2009) pp. 5-28.
22. "DNA Hash Pooling and its Application" Dennis Shasha and Martyn Amos *International Journal of Nanotechnology and Molecular Computation* 1(1), 18-32, January-March 2009 (Previous version: arXiv:0705.3597)
23. "An integrated genetic, genomic and systems approach defines gene networks regulated by the interaction of light and carbon signaling pathways in Arabidopsis" Karen E Thum, Michael J Shin, Rodrigo Gutierrez, Indrani Mukherjee, Manpreet S Katari, Damion Nero, Dennis Shasha and Gloria M Coruzzi *BMC Systems Biology* 2008, 2:31 (04 Apr 2008)
24. Gutierrez, R.A., Lejay, L., Chiaromonte, F., Shasha, D.E., Coruzzi, G.M. (2007) "Qualitative network models and genome-wide expression data define carbon/nitrogen-responsive molecular machines in Arabidopsis". *Genome Biol.*: 8, pp. R7. "Must read" Factor 6 in the Faculty of 1000.

25. "GraphFind: Enhancing Graph Searching by Low Support Data Mining Techniques" A. Ferro, R. Giugno, M. Mongiovi, A. Pulvirenti, D. Skripin, D. Shasha, BMC Bioinformatics, vol. 8 ISSN: 1471-2105, 2007.
26. "Homology search for genes" Xuefeng Cui; Tomas Vinar; Brona Brejova; Dennis Shasha; Ming Li Bioinformatics. 2007 Jul 1;23 (13):i97-i103 17646351 (P,S,E,B,D)
27. "Insights into the genomic nitrate response using genetics and the Sungear software system" Rodrigo A. Gutierrez, Miriam L. Gifford, Chris Poultney, Rongchen Wang, Dennis E. Shasha, Gloria M. Coruzzi and Nigel M. Crawford JXB Advance Access published online on April 29, 2007 Journal of Experimental Botany, doi:10.1093/jxb/erm079
28. A. Ferro, R. Giugno, G. Pigola, A. Pulvirenti, D. Skripin, G. D. Bader, D. Shasha "NetMatch: a Cytoscape Plugin for Searching Biological Networks" Bioinformatics, 2007 23(7):910-912; doi:10.1093/bioinformatics/btm032
29. Christopher S. Poultney, Rodrigo A. Gutierrez, Manpreet S. Katari, Miriam L. Gifford, W. Bradford Paley, Gloria M. Coruzzi and Dennis E. Shasha "Sungear: Interactive visualization and functional analysis of genomic datasets" Bioinformatics, 2007; Jan 15;23(2):259-61 doi: 10.1093/bioinformatics/bt1496
30. Charles J. Colbourn, Sosina S. Martirosyan, Gary L. Mullen, Dennis Shasha, George B. Sherwood, Joseph L. Yucas "Products of Mixed Covering Arrays of Strength Two" Journal of Combinatorial Designs Volume 14, Issue 2, Date: March 2006, Pages: 124-138
31. Jason T. L. Wang, Huiyuan Shan, Dennis Shasha and William H. Piel, "Fast Structural Search in Phylogenetic Databases," Evolutionary Bioinformatics Online, Vol. 1, October 2005, pp. 37-46.
32. Michael Rabin and Dennis Shasha "Preventing Piracy while Preserving Privacy" Dr. Dobb's Journal, October 2005.
33. Rodrigo Gutierrez, Dennis Shasha, and Gloria Coruzzi, "Systems Biology for the Virtual Plant" Plant Physiology, June 2005, vol. 38, pp. 550-554.
34. J. T. L. Wang, X. Wang, D. Shasha and K. Zhang, "MetricMap: An Embedding Technique for Processing Distance-Based Queries in Metric Spaces," IEEE Transactions on Systems, Man and Cybernetics, Part B, Cybernetics, Vol. 35, No. 5, October 2005, pp. 973-987.
35. "Making Snapshot Isolation Serializable" Alan Fekete, Dimitrios Liarokapis, Elizabeth O'Neil, Patrick O'Neil, Dennis Shasha ACM TODS, June 2005 vol. 30, number 2. pp. 492-528

36. "In Vitro and In Silico Cloning of *Xenopus laevis* SOD2 cDNA and its Phylogenetic Analysis" Michele Purrello, Cinzia di Pietro, Marco Ragusa, Alfredo Pulvirenti, Rosalba Giugno, Valetina di Pietro, Giovanni Emanuele, Salvo Travali, Marina Scia, Dennis Shasha, and Alfredo Ferro. *DNA and Cell Biology*, volume 24, number 2, 2005, pp. 111-116.
37. "Antipole Tree Indexing to Support Range Search and K-Nearest Neighbor Search in Metric Spaces" Domenico Cantone, Alfredo Ferro, Alfredo Pulvirenti, Diego Reforgiata, Dennis Shasha *IEEE Transactions on Knowledge and Data Engineering*, vol. 17, no. 5 (April 2005), pp. 535-550.
38. "Database Systems" Dennis E. Shasha and Philippe Bonnet in special issue of *Dr. Dobb's Journal on Database Development* December 2004.
39. "Adaptive Combinatorial Design to explore Large Experimental Spaces: approach and validation" Laurence V. Lejay, Dennis E. Shasha, Peter M. Palenchar, Andrei Y. Kouranov, Alexis A. Cruikshank, Michael F. Chou, Gloria M. Coruzzi *Systems Biology*, volume 1, issue 2, December 2004, pp. 206-212.
40. "Fast structural search in phylogenetic databases" Jason Wang, Shan, Dennis Shasha, William Piel *Applied Bioinformatics*, to appear.
41. "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 (A review article in the Research Focus section of *Trends in Biotechnology* called the article "At the end of 2003, the root biology community was blessed with what has become today already a historical paper that described for the first time a genome wide expression analysis of Arabidopsis root development [2].")
42. Dennis Shasha "Plant Systems Biology: Lessons from a Fruitful Collaboration" *Plant Physiology*, June 2003, Vol 132, pp. 1-2.
43. Alfredo Ferro, G. Pigola, Alfredo Pulvirenti, Dennis Shasha: "Fast Clustering and Minimum Weight Matching Algorithms for Very Large Mobile Backbone Wireless Networks." *Int. J. Found. Comput. Sci.* 14(2): 223-236 (2003)
44. Mitchell Levesque, Dennis Shasha, Wook Kim, Michael G. Surette, and Philip N. Benfey "Trait-To-Gene: A Computational Method for Predicting the Function of Uncharacterized Genes" *Current Biology*, vol. 13, 129-133, January 21, 2003. Discussed in: http://www.the-scientist.com/yr2003/jun/hot_030603.html
45. Qicheng Ma, Jason T. L. Wang, Dennis Shasha and Cathy H. Wu, "DNA Sequence Classification via an Expectation Maximization Algorithm and

- Neural Networks: A Case Study,” *IEEE Transactions on Systems, Man, and Cybernetics*, Special Issue on Knowledge Management, invited, to appear.
46. “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.
 47. “cis Element/Transcription Factor Analysis (cis/TF): A Method for Discovering Transcription Factor/cis Element Relationships” Kenneth Birnbaum, Philip N. Benfey, and Dennis E. Shasha *Genome Res.* 2001 11: 1567-1573.
 48. Munir Cochinwala, Verghese Kurien, Gail Lalk, and Dennis Shasha “Efficient data reconciliation” *Information Sciences* 137, (2001), pp. 1-15
 49. J. T. L. Wang, Q. Ma, D. Shasha and C. H. Wu, “New Techniques for Extracting Features from Protein Sequences,” *IBM Systems Journal*, Special Issue on Deep Computing for the Life Sciences, invited, Vol. 40, No. 2, 2001, pp. 426-441 (accessible at <http://www.research.ibm.com/journal/sj40-2.html>)
 50. “Finding Patterns in Three Dimensional Graphs: Algorithms and Applications to Scientific Data Mining” Xiong Wang, Jason T-L Wang, Dennis Shasha, Bruce Shapiro, Isidore Rigoutsos, and Kaizhong Zhang *IEEE Transactions on Knowledge and Data Engineering*, pp. 731-749, 2002.
 51. “An Index Structure for Data Mining and Clustering” by Xiong Wang, Jason T.L. Wang, King-Ip Lin, Dennis Shasha, Bruce A. Shapiro, and Kaizhong Zhang *Knowledge and Information Systems: An International Journal* ISSN 0219-1377 by Springer-Verlag Volume 2, Number 2 (May 2000) pp. 161-184
 52. “New Techniques for DNA Sequence Classification,” Jason T. L. Wang, Steve Rozen, Bruce A. Shapiro, Dennis Shasha, Zhiyuan Wang and Maisheng Yin, *Journal of Computational Biology*, Vol. 6, No. 2, 1999, pp. 209-218.
 53. Dennis Shasha “Tuning Time Series Queries in Finance: case studies and recommendations” *IEEE Data Engineering Bulletin* July, 1999. Special issue on Performance Tuning for Database Systems, edited by Surajit Chaudhuri. (invited by the editor)
 54. K. Jacob and Dennis Shasha “FinTime — a financial time series benchmark” *Sigmod Record*, December, 1999

55. J. T. L. Wang, B. A. Shapiro, Dennis Shasha, K. Zhang and K. M. Currey, "An Algorithm for Finding the Largest Approximately Common Substructures of Two Trees," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 20, No. 8, August 1998, pp. 889-895.
56. "Tuning Databases for High Performance" *ACM Computing Surveys*, Vol. 28, no. 1, March 1996, pp. 113-115 Dennis Shasha
57. J. T. L. Wang, T. G. Marr, Dennis Shasha, B. A. Shapiro, G.-W. Chirn and T. Y. Lee, "Complementary Classification Approaches for Protein Sequences," *Protein Engineering*, Vol. 9, No. 5, May 1996, pp. 381-386.
58. "On the Editing Distance between Undirected Acyclic Graphs," *International Journal of Foundations of Computer Science*, K. Zhang, J. T. L. Wang and Dennis Shasha, Special Issue on Computational Biology, Vol. 7, No. 1, March 1996, pp. 43-57.
59. "Transaction Chopping: Algorithms and Performance Studies" Dennis Shasha, F. Llirbat, E. Simon, P. Valduriez *ACM Transactions on Database Systems*, October 1995, pp. 325-363.
60. "Discovering Active Motifs in Sets of Related Protein Sequences and Using Them for Classification" Jason T. L. Wang, Thomas G. Marr, Bruce Shapiro, Dennis Shasha and Gung-Wei Chirn *Nucleic Acids Research*, 1994, Vol. 22, No. 14, pp. 2769-2775.
61. "D-Over: An Optimal On-Line Scheduling Algorithm for Overloaded Uniprocessor Real-Time Systems" G. Koren and Dennis Shasha *Siam Journal on Computing*, April 1995, pp. 318-339, vol. 24, no. 2.
62. "MOCA : A Multiprocessor On-Line Competitive Algorithm for Real-Time System Scheduling" G. Koren and Dennis Shasha *Theoretical Computer Science*, Special Issue on Dependable Parallel Computing, issue 128, July 1994, pp. 75-97.
63. "Exact and Approximate Algorithms for Unordered Tree Matching." J. T-L. Wang, K. Zhang, Dennis Shasha, and F. Shih) *IEEE Transactions on Systems, Man and Cybernetics* Vol. 24, No. 4, April 1994, pp. 668-678.
64. "Approximate Tree Matching in the Presence of Variable Length Don't Cares" K. Zhang, T-L. Wang, and Dennis Shasha *Journal of Algorithms*, vol. 16, pp. 33-66 (1994).
65. "A System for Approximate Tree Matching" K. Jeong, T-L. Wang, K. Zhang, Dennis Shasha *IEEE Transactions on Knowledge and Data Engineering*, Vol. 6, No. 4, Aug. 1994, 559-571.

66. "The Performance of Concurrent B-tree Algorithms" T. Johnson and Dennis Shasha *ACM Transactions on Database Systems*, March 1993, pp. 51-101.
67. "Optimizing Database Performance," Dennis Shasha *Dr. Dobb's Journal* (magazine for professional programmers) April 1993, special supplement on tools and techniques for database development, pp. 32s-34s.
68. "Inserts and Deletes on B-trees: why free-at-empty is better than merge-at-half" T. Johnson and Dennis Shasha *Journal of Computer Sciences and Systems*, invited, vol. 47, no. 1, pp. 45-76, Aug. 1993.
69. "On the Editing Distance between Unordered Labeled Trees" K. Zhang, Dennis Shasha, and R. Statman *Information Processing Letters*, vol. 42, pp. 133-139 (1992).
70. "On the Competitiveness of On-Line Real-time Task Scheduling" S. Baruah, G. Koren, D. Mao, B. Mishra, A. Raghunathan, L. Rosier, Dennis Shasha, and F. Wang *Real-Time Systems Journal* invited, Volume 4, Number 2, 125-144, (June 1992)
71. "The Many Faces of Consensus in Distributed Systems" Dennis Shasha and J. Turek *IEEE Computer*, June, 1992, pp. 8-17.
72. "Revisiting B-Trees" T. Johnson and Dennis Shasha, *Dr. Dobb's Journal* (magazine for professional programmers): January 1992, pp. 44-49.
73. "Information Search with Dynamic Text vs. Paper Text: an empirical comparison" S. Gray, C. B. Barber, and Dennis Shasha *International Journal of Man-Machine Studies* vol. 35, pp. 575-586 (1991).
74. "Optimizing Equijoin Queries In Distributed Databases Where Relations Are Hash Partitioned" Dennis Shasha and T-L. Wang *ACM Transactions on Database Systems*, vol. 16, no. 2, pp. 279-308, June 1991.
75. "Fast Algorithms for the Unit Cost Editing Distance Between Trees" Dennis Shasha and K. Zhang *Journal of Algorithms*, vol. 11, pp. 581-621 (1990).
76. "New Techniques for Best Match Retrieval" Dennis Shasha and T-L. Wang *ACM Transactions on Office Information Systems*, vol. 8, no. 2, pp. 140-158, April 1990.
77. "Performance and Architectural Issues for String Matching" M. Isenman and Dennis Shasha *IEEE Transactions on Computers*, vol. 39, no. 2, pp. 238-250, February 1990.

78. “Simple Fast Algorithms for the Editing Distance Between Trees and Related Problems” K. Zhang and Dennis Shasha *Siam Journal of Computing*, vol. 18, no. 6, pp. 1245-1262, December 1989.
79. “Using a Relational Database on Wall Street: the good, the bad, the ugly, and the ideal” S. Rozen and Dennis Shasha, *Communications of the ACM*, vol. 32, no. 8, pp. 988-994, August 1989.
80. “To Link or Not to Link? Empirical Guidance to the Design of Nonlinear Text Systems” S. H. Gray and Dennis Shasha, *Behavior Research: Methods, Instruments, and Computers* vol. 21, no. 2, pp. 326-333, April 1989.
81. “Efficient and Correct Execution of Parallel Programs that Share Memory” Dennis Shasha and M. Snir, *ACM Transactions on Programming Languages, and Systems*, vol. 10, no. 2, pp. 282-312, April, 1988.
82. “Concurrent Search Structure Algorithms” Dennis Shasha and N. Goodman, *ACM Transactions on Database Systems*, vol. 13, no. 1, pp. 53-90, March 1988.

Journal Puzzle Columns

1. Dr. Dobb’s Journal: *Omniheurist Puzzle Corner* April 1998 to September, 2002
April 2004 to December 2005.
2. Scientific American: *Puzzling Adventures* April 2001 to May 2004 in magazine and on web.
June 2004 and till June 2009 at www.sciam.com.
3. Scientific American: *Parent’s Corner* May 2004 and till end of 2004 at www.sciam.com.

Refereed Conference Publications

1. ThePlantGame: Actively Training Human Annotators for Domain-specific Crowdsourcing Maximilien Servajean, Alexis Joly, Dennis Shasha, Julien Champ, Esther Pacitti ACM Multimedia 2016, October 2016, demonstration paper <http://theplantgame.com>
2. Conjugate conformal prediction for online binary classification. M. A. Kocak, D. Shasha, and E. Erkip. Conference on Uncertainty in Artificial Intelligence, UAI 2016, July 2016.
3. ReproZip: Computational Reproducibility With Ease Fernando Chirigati (New York University); Remi Rampin (New York University); Dennis

Shasha (New York University); Juliana Freire (New York University) ACM Sigmod 2016

4. "A Course on Programming and Problem Solving" Swapneel Sheth, Christian Murphy, Kenneth Ross, Dennis Shasha SIGCSE 2016 March 02-05, 2016, Memphis, TN, USA
5. Yasuhiro Fujiwara and Dennis Shasha Quiet: Faster Belief Propagation for Images and Related Applications IJCAI 2015, Buenos Aires Argentina July 2015.
6. Nieto, O., Shasha, D., Hand Gesture Recognition in Mobile Devices: Enhancing The Musical Experience. Proc. of the 10th International Symposium on Computer Music Multidisciplinary Research (CMMR). Marseille, France, October 2013
7. Fernando Chirigati, Dennis Shasha, and Juliana Freire "ReproZip: Packing Experiments for Sharing and Publication" ACM SIGMOD 2013
8. Wei Cao and Dennis Shasha "AppSleuth: a Tool for Database Tuning at the Application Level" EDBT 2013 (regular paper)
9. Wei Cao and Dennis Shasha "Tuning in Action" EDBT 2013 (demonstration of tool)
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Invited Papers

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2. "Incremental Methods for Simple Problems in Time Series: algorithms and experiments" Xiaojian Zhao, Xin Zhang, Tyler Neylon, Dennis Shasha *International Database Engineering and Applications Symposium*, July 2005, pp. 3-16 (invited, keynote).

3. “Activist Data Mining for Computational Science: Tools and Applications” Dennis Shasha, pp. 6-10 Database Tuning: Principles, Experiments, and Guidance p. 1 18th Brazilian Symposium on Databases October 2003 (Manaus)
4. “High Volume Transaction Processing Without Concurrency Control, Two Phase Commit, SQL or C++”, Arthur Whitney, Dennis Shasha, Steve Apter. pp. 211-217 Seventh International Workshop on High Performance Transaction Systems, September, 1997, Asimolar, California.
5. “Some Approaches to Index Design for Cube Forests” Theodore Johnson and Dennis Shasha Issue: Supporting On-line Analytical Processing (editor: Daniel Barbara) March 1997 issue of the IEEE Data Engineering Bulletin <http://www.research.microsoft.com/research/db/debull/>

Web Sites

1. Web sites:
 - <http://cs.nyu.edu/cs/faculty/shasha/papers/tree.html> [ordered tree matching]
 - <http://cs.nyu.edu/cs/faculty/shasha/papers/treearch.html> [unordered tree matching]
 - <http://cs.nyu.edu/cs/faculty/shasha/papers/graphgrep/index.html> [graph matching]
 - <http://cs.nyu.edu/cs/faculty/shasha/papers/statstream.html> [time series matching]
 - <http://cs.nyu.edu/cs/faculty/shasha/fintime.html> [benchmark for financial databases]
 - <http://cs.nyu.edu/cs/faculty/shasha/spytime/spytime.html> [benchmark for bitemporal databases]

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1. “Detecting Missing and Spurious Edges in Large, Dense Networks Using Parallel Computing” Sam Coolidge, Dan Simon, and Dennis Shasha NYU Computer Science TR2016-986, December 19, 2016
2. “Finding Prospects for Shopping Centers: a machine learning approach” Jonathan Kogan; Rishabh Jain; Joe Jean; Roy Lowrance; Dennis Shasha NYU Computer Science TR2016-984 2016
3. “Alphacodes: Usable, Secure Transactions with Untrusted Providers using Human Computable Puzzles,” Ashlesh Sharma, Varun Chandrasekaran,

Fareeha Amjad, Dennis Shasha, Lakshminarayanan Subramanian <http://cs.nyu.edu/media/publications/982.pdf> NYU Computer Science TR2016-982

4. “A Crop Recommendation Tool for Organic Farmers,” Jasmine Hsu and Dennis Shasha September 2015 TR2015-975
5. “Acronym Disambiguation” Benjamin D. Turtel, Dennis Shasha June 2015 TR2015-973
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11. “An Extensible Framework for Data Cleaning” Helena Galhardas, Daniela Florescu, Dennis Shasha and Eric Simon, INRIA, July, 1999
12. “Hierarchically Split Cube Forests for Decision Support: description and tuned design” Ted Johnson and Dennis Shasha NYU Computer Science Technical Report 727, November, 1996.
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14. “Beyond Fail-Stop: Wait-Free Serializability and Resiliency in the Presence of Slow-Down Failures” J. Turek and Dennis Shasha, NYU Computer Science Technical Report 514, September, 1990.
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Authored Books

1. *Logic and the art of reasoning* Dennis Shasha Aristotle Circle, 2016 164 pages, Puzzle book to help children reason better.
2. *Network Inference in Molecular Biology – a hands-on framework* Jesse Lingeman and Dennis Shasha, Springer Verlag, 2012, 109 pages, ISBN 978-1461431121.
3. *Stored Clocked Programs Inside DNA: a simplifying framework for Nanocomputing* Jessie Chang and Dennis Shasha Morgan and Claypool, 2011, 66 pages
ISBN: 9781608456956 paperback
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4. *Natural Computing: DNA, Quantum Bits, and the Future of Smart Machines* Dennis Shasha and Cathy Lazere, W. W. Norton, 2010, 288 pages
ISBN-10: 0393336832
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Translated to French (Dunod), Chinese (posts and telephone) and Italian (Santachiara) complete and Japanese (Uni Agency) and to Turkish (Tubitak).
5. *Statistics is Easy!* Dennis Shasha and Manda Wilson, Morgan Claypool publishing 2008, 74 pages, (doi:10.2200/S00142ED1V01Y200807MAS001) <http://www.morganclaypool.com/doi/abs/10.2200/S00142ED1V01Y200807MAS001>
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- Gary Shapiro in the Arts and Letters section.) Translation to Portuguese in progress.
10. *High Performance Discovery in Time Series: techniques and case studies* Dennis Shasha and Yunyue Zhu, Springer Verlag Publishers, Monographs in Computer Science, June 2004, ISBN 0387008578, 270 Pages.
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 14. *Out of Their Minds: the lives and discoveries of 15 great computer scientists* by Dennis Shasha and Cathy Lazere, Springer-Verlag, New York, August, 1995.
(Book of short biographies and research philosophies. Translated to Japanese, Korean, traditional Chinese (Taiwan), and simplified Chinese (China).) The Chinese publisher Ituring interviewed me and provide a Chinese version: <http://www.ituring.com.cn/article/details/12519> and an English version: <http://www.ituring.com.cn/article/12520>
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 16. *Codes, Puzzles, and Conspiracy* by Dennis Shasha, W. H. Freeman, New York 1992. Republished by Dover in 2004.
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Co-Edited Books

1. *Data Mining in Bioinformatics* J. T. L. Wang, M. J. Zaki, H. T. T. Toivonen and D. Shasha (eds.), 350 pages, Springer-Verlag, ISBN: 1-85233-671-4, August 2005.
2. *Pattern Discovery in Biomolecular Data: Tools, Techniques, and Applications* Jason Wang, Bruce Shapiro, and Dennis Shasha (Eds.) Oxford University Press, November, 1999.

Patents

1. "Conditional Transition Networks and Computational Processes for Use in Interactive Computer-based Systems" Dennis Shasha, March 2, 1998 US 5,809,212.
2. "Method and apparatus for optimizing and structuring data by designing a cube forest data structure for hierarchically split cube forest template" Theodore Johnson and Dennis Shasha, October 31, 2000, US 6,141,655.
3. "Concurrent Reconciliation of an Update Stream with Database Reassignment of Scheduling Databases" Peter Koppstein, Benjamin Park and Dennis Shasha, November, 2000, US 6,138,118.
4. "Fault Tolerant Storage System" Ted Johnson and Dennis Shasha April, 2001, US 6,219,800.
5. "Method and Apparatus for loading Data into a Cube Forest Data Structure" Ted Johnson and Dennis Shasha U.S. Patent 6,334,125 December 25, 2001
6. "Method and Apparatus for Querying a Cube Forest Data Structure" Ted Johnson and Dennis Shasha U.S. Patent 6,424,967 July 23, 2002
7. "Methods and Apparatus for Protecting Information" Michael Rabin and Dennis Shasha U.S. Patent 6,697,948 February 24, 2004 (29 references)
8. "Methods And Apparatus For Protecting Information" Michael O. Rabin, Dennis E. Shasha Australia, Patent 767286 19 February 2004

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10. "Methods And Apparatus For Protecting Information" Michael O. Rabin, Dennis E. Shasha Mexico Patent 224912 December 13, 2004
11. "Method and Apparatus for Protecting Information and Privacy" Michael Rabin and Dennis Shasha U.S. Patent 6,889,209 May 3, 2005. (7 references)
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15. "Method and apparatus for protecting information and privacy" Michael Rabin and Dennis Shasha U.S. Patent 7,406,593 July 29, 2008
16. "System and process of determining a biological pathway based on a treatment of a biological specimen" Peter Palenchar, Dennis Shasha, Michael Chou, Marc Rejali, Yair Dorsett, Andrei Kouranov, Gloria Coruzzi U.S. Patent 7,739,053 June 15, 2010
17. "Method and Apparatus for Protecting Information and Privacy" Michael Rabin and Dennis Shasha U.S. Patent 7,747,873 June 29, 2010
18. "System and Method for Representing the Interactions between Multiple Inputs and At Least One Output" Dennis Shasha, Rodrigo Gutierrez, W. Bradford Paley, Christopher Poultney, and Gloria Coruzzi U.S. Patent 7,805,703 September 28, 2010
19. "Method and Apparatus for Protecting Information and Privacy" Michael Rabin and Dennis Shasha U.S. Patent 7,991,995 August 2, 2011.
20. "Method and Apparatus for Protecting Information and Privacy" Michael Rabin and Dennis Shasha U.S. Patent 8,327,453 December 4, 2012
21. "Database outsourcing with access privacy" Dennis Shasha, Peter Williams, and Radu Sion U.S. Patent 8,458,451 June 4, 2013
22. "Methods and systems for multi-dimensional motion" Dennis Shasha and Mike Whittaker, U.S. Patent 13/155,448 Patent number 8689698, April 8, 2014

23. "Methods and systems for multi-dimensional motion" Dennis Shasha and Mike Whittaker, U.S. Patent number 8931417 Jan 13, 2015
24. "Computer System, Client Device and Method" Dennis Shasha and Arthur Meacham, U.S. Patent Number 9171271 Oct. 27, 2015
25. "Corrupting data structures for privacy protection" Dennis Shasha US Patent 9,507,734 November 29, 2016
26. "Secure Transactions Using Alphacodes" Lakshminarayanan Subramanian, Ashlesh Sharma, Dennis Shasha U.S. Patent No. 9,680,806 on June 13, 2017

Co-Edited Conference Proceeding

1. Catriel Beeri, Atsushi Ohori and Dennis E. Shasha (Eds.) *Database Programming Languages (DBPL-4) Proceedings of the Fourth International Workshop on Database Programming Languages - Object Models and Languages*, Manhattan, New York City, USA, 30 August - 1 September 1993 ISBN: 3-540-19853-9 / Springer-Verlag Workshops in Computing Series Feb. 94.

Invited Book Chapters

1. Short chapters in the Encyclopedia of Database Systems "Tuning Concurrency Control", "Schema Tuning", "Physical Layer Tuning", "Index Tuning", "Administration Wizards", "Performance Monitoring Tools", "Benchmark Frameworks", "Data Generation", "Database Benchmarks", "Tuning Concurrency Control", "Transaction Chopping". Philippe Bonnet and Dennis Shasha
2. "Fast Methods for Statistical Arbitrage" Eleftherios Soulas and Dennis Shasha pp. 473-497 in *Data Stream Management: Processing High-Speed Data Streams* eds: Minos Garofalakis, Johannes Gehrke, Rajeev Rastogi Springer, Jul 11, 2016, 576 pages ISBN 978-3-540-28608-0
3. gLabTrie: a data structure for motif discovery with constraints Misael Mongiovi, Giovanni Micale, Alfredo Ferro, Rosalba Giugno, Alfredo Pulvirenti and Dennis Shasha in *Advances in Graph Data Management*, Springer Verlag, eds: Fletcher, Hidders, Larriba-Pey 2016
4. "Visualizing the Outcomes of N Experiments on M Entities: an aid to insight" Chris Poultney and Dennis Shasha in *Plant Systems Biology* Gloria Coruzzi and Rodrigo Gutierrez (eds) Blackwell Publishing Ltd 12 pages.

5. Cinzia Di Pietro, Alfredo Ferro, Giuseppe Pigola, Alfredo Pulvirenti, Michele Purrello, Marco Ragusa, Dennis Shasha AntiClustAl: Multiple sequence alignment by antipole clustering Data Mining in Bioinformatics 2005: pp. 43-57.
6. "Tuning Database Design for High Performance" Dennis Shasha and Philippe Bonnet, in *CRC Handbook of Computer Science and Engineering* 2004 Allen Tucker (ed.) in press
7. "Scheduling Overloaded Real-Time Systems with Competitive/Worst Case Guarantees" Gilad Koren and Dennis Shasha in *Handbook of Scheduling: Algorithms, Models, and Performance Analysis* Joseph Y-T Leung, Chapman Hall/CRC, publishers.
8. "Approximate Tree Pattern Matching" Dennis Shasha and Kaizhong Zhang, in *Pattern Matching in Strings, Trees, and Arrays* A. Apostolico and Z. Galil (eds.) pp. 341-371. Oxford University Press, 1997. ISBN 0-19-511367-5
9. "Tuning Database Design for High Performance" Dennis Shasha, in *CRC Handbook of Computer Science and Engineering* 1997, ISBN 0-8493-2909-4 Allen Tucker (ed.) pp 995 - 1011

Web Publications

1. "FinTime, a financial time series benchmark," <http://cs.nyu.edu/cs/faculty/shasha/fintime.html> Kaiippallimalil J. Jacob and Dennis Shasha April, 1999.

Invited Talks

1. June 30, 2017 Version Climber: a reproducibility-based approach for upgrading complex software INESC, Lisbon, Portugal
2. June 1, 2017 Reducing Errors by Refusing to Guess (Occasionally) INRIA, Montpellier France
3. April 7, 2017 Reducing Errors by Refusing to Guess (Occasionally) University of California at Los Angeles
4. February 9, 2017 Reducing Errors by Refusing to Guess (Occasionally) INGEBI-CONICET Buenos Aires (1428) Argentina
5. January 23, 2017 Reducing Errors by Refusing to Guess (Occasionally) Technion, Israel
6. January 23, 2017 The Changing Nature of Invention in Computer Science Technion, Israel

7. January 22, 2017 Reducing Errors by Refusing to Guess (Occasionally)
University of Tel Aviv, Israel
8. October 19, 2016 Banquet Talk – logical puzzles with a deck of cards
ICLP16 – 32nd International Conference on Logic Programming
9. July 14, 2016 “Fast Analytical Methods for Finding Significant Colored
Graph Motifs” 2nd International ScaDS Summer School on Big Data
Leipzig Germany
10. June 8, 2016 ”Fast data analytics for time series and other ordered data”
BDA MDD 2016 (Masses de Donnees Distribuees) Urrugne, France.
11. October 12, 2015 Liquid Version Climber: a reproducibility-based ap-
proach for upgrading complex software ATT Labs, New York City.
12. September 1 and 2, 2015: Graph Motifs: query and discovery EDBT
Summer School 2015, Palamos, Spain.
13. May 19, 2015: Computational Reproducibility: why needed, first tools,
open problems DigiCosme, Ensta Tech, Paris, France
14. April 2, 2015: The Changing Nature of Invention in Computer Science.
INRIA Sophia Antipolis
15. April 1, 2015: Network Inference from CRISPR-like Experiments INRIA
Sophia Antipolis
16. March 6, 2015: Statistics is Easy, INRIA Montpellier.
17. September 2014: The Changing Nature of Invention in Computer Science.
[ja href=https://www.youtube.com/watch?list=PLn0nrSd4xjjZa4KDqFBCMOnk52CItWqyU&v=8dkZC](https://www.youtube.com/watch?list=PLn0nrSd4xjjZa4KDqFBCMOnk52CItWqyU&v=8dkZC)
ACM Webinar. [i/a](#)
18. ”Fast Methods for Finding Patterns in Time Series” Microsoft Research,
New York July 15, 2014.
19. ”Statistics is Easy” Microsoft Research, New York July 15, 2014.
20. ”The Changing Nature of Invention in Computer Science” Bloomberg,
New York February 26, 2014
21. ”The Changing Nature of Invention in Computer Science” Masdar research
institute, Abu Dhabi, January 14, 2014
22. ”Fast Methods for Finding Patterns in Time Series” Big Data in Finance
May 3, 2013
23. ”Stored Clocked DNA Computing” University of Southern California March
13, 2013

24. "Stored Clocked DNA Computing" INRIA Sophia-Antipolis January 28, 2013
25. "Changing Nature of Invention in Computer Science" UC Santa Barbara April 9, 2012
26. "Stored Clocked DNA Computing" IBM Research September 28, 2011
27. "Stored Clocked DNA Computing" Carnegie Mellon University September 16, 2011
28. "Natural Computing" ATT Tech Talk, April 2011 <http://techchannel.att.com/>
29. "Digital Rights Management" ATT Tech Talk, April 2011 <http://techchannel.att.com/>
30. "Data Quality is Bad? Deal With It" DIMACS/CCICADA Workshop on Data Quality Metrics February 4, 2011.
31. "Linguistic Explorer: a tool for cross-linguistic research" Middlebury College, October 22, 2010
32. "Secure Data Outsourcing" BBI Colloquium in Berlin, Technische Universität, May 29, 2009.
33. "Secure Data Outsourcing" Telcordia, January 29, 2009.
34. "DNA Hash Pooling and its Applications" Program in Integrative Information, Computer and Application Sciences. Princeton University. April 14, 2008.
35. "Dealing with Scale in Visualization and Machine Learning" Bringing Plant and Computing Scientists Together to Solve Plant Biology's Grand Challenges 2008. Cold Spring Harbor Lab. April 7, 2008.
36. "Biocomputational Puzzles: data, algorithms, and visualizations" Extending Database Technology, 2008, p. 2. Nantes, France. March 27, 2008.
37. "StrangerDB: database management with an untrusted server" Université Pierre et Marie Curie, Paris. May 23, 2007.
38. "The Nature of Invention in Computer Science: a collaborative reflection based on the book *Out of their Minds*" Humboldt University, Berlin. May 7, 2007.
39. "Upstart Puzzles" Distinguished lecture series. Max Planck Institut fuer Informatik, Saarbruecken, Germany April 25, 2007.
40. "The Nature of Invention in Computer Science: a collaborative reflection based on the book *Out of their Minds*" American University of Paris, France, April 23, 2007.

41. “Biocomputational Puzzles” University of Montpellier, France February 1, 2007.
42. “StrangerDB: database management with an untrusted server” Conference on Management of Data (COMAD) keynote, Delhi, India, December 15, 2006
43. “The Nature of Invention in Computer Science: a collaborative reflection based on the book *Out of their Minds*” French Ministry of Research, Paris, France, November 29, 2006.
44. “Biocomputational Puzzles” Ecole Polytechnique de Lausanne, Switzerland, November 11, 2006.
45. “Fast Calculations of Simple Primitives in Time Series” Universite Marne la Vallee, France, November 7, 2006.
46. “Upstart Puzzles” American University of Paris, France, November 7, 2006.
47. “StrangerDB: database management with an untrusted server” Utrecht, the Netherlands. September 18, 2006
48. “The Nature of Invention in Computer Science: a collaborative reflection based on the book *Out of their Minds*” Utrecht, the Netherlands. September 18, 2006
49. “StrangerDB: database management with an untrusted server” DB/IR conference. Rutgers New Jersey, April 29 2006
50. “Biocomputational Puzzles” IBM corporation, September 30, 2005.
51. “Biocomputational Puzzles” Xerox corporation, July 28, 2005, distinguished lecture series.
52. “Incremental Methods for Simple Problems in Time Series: algorithms and experiments” Xiaojian Zhao, Xin Zhang, Tyler Neylon, and Dennis Shasha International Database Engineering and Applications Symposium, July 2005, Montreal Canada July 25, 2005.
53. “Privacy-preserving Piracy Prevention”, Fifth Haifa Worokshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms, May 16, 2005
54. “Biocomputational Puzzles” Sloan Kettering (Chris Sander group) May 12, 2005
55. “Privacy-preserving Piracy prevention” Massachusetts Institute of Technology March 14, 2005

56. "Upstart Puzzles" University of Waterloo, Canada. January 18, 2005
57. "Privacy-preserving Piracy prevention" University of Waterloo, Canada. January 17, 2005
58. "The Graph of Life" American Museum of Natural History, New York, USA January 14, 2005
59. "Upstart Puzzles" City University of New York May 13, 2004.
60. "Upstart Puzzles" Distinguished Speaker Seminar Series - Dennis Shasha New Jersey Institute of Technology. February 25, 2004.
61. "Upstart Puzzles" Canadian Mathematical Society, June 15, 2003. Plenary speaker.
62. "Tools for Time Course Data", New York Academy of Sciences, May 21, 2003
63. "Aquery: a database system for order" Stanford University, January 10, 2003
64. "Building a Database for Order" New England Database Symposium, Brandeis, April 12, 2002.
65. "Mathematical Insight, Science, and Finance" Penn State, February 28, 2002
66. "Graphs, Puzzles, and Graph Generators" DIMACS, November 16, 2001.
67. "Activist Data Mining (as applied to Carbon:Nitrogen sensing in plants)" DIMACS Summer School on New Frontiers in Data Mining August 17, 2001. Rutgers New Jersey.
68. "Figuring Out Transcription Factor Networks" IBM Yorktown Research, April 26, 2000. Laxmi Parida, host.
69. "Approximate Graph Matching: approaches and a tool" University of Pennsylvania. April 13, 2000. Peter Buneman, host.
70. "Figuring Out Transcription Factor Networks" Rockefeller University, April 4, 2000. Eric Siggia, host.
71. 5 talks at the University of Catania June 17 and 18, 1999:
 - i) Data Mining and Tree Matching
 - ii) An attribute management system
 - iii) Time Series in Finance.
 - iv) Advanced Database Tuning and Configuration
 - v) Upstart Puzzles

72. Time Series in Finance
Dennis Shasha
ENST Bretagne, France
invited by: Philippe Picouet
73. Time Series in Finance
Dennis Shasha Summer School in Extending Database Technology, May 20, 1999, La Baule, France.
74. An Attribute Management System
Dennis Shasha Humboldt University, Berlin, Germany April 30, 1999.
(invited by Professor Oliver Guenther)
75. A System for Exploration Management
Dennis Shasha University of Aachen, April 8, 1999. (invited by Professor Matthias Jarke)
76. A System for Exploration Management
Dennis Shasha University of Rome, La Sapienza March 4, 1999. (invited by Professor Maurizio Lenzerini)
77. A System for Exploration Management
Dennis Shasha ETH, Zurich Switzerland February 22, 1999. (invited by Professor Hans-Joerg Schek)
78. A System for Exploration Management
Dennis Shasha University of Saarbruecken, Germany February 19, 1999.
(invited by Professor Gerhard Weikum)
79. A System for Exploration Management
Dennis Shasha University of Muenster, Germany December 9, 1998. (invited by Professor Gottfried Vossen)
80. "Time Series in Finance: the array database approach" Dennis Shasha VLDB Conference, August, 1998.
81. New York's Top Software Researchers
Top Researchers from NYU
Wednesday, March 11, 1998
153 E. 53rd St., NY, NY "Thinksheet: a Spreadsheet for Complex Thinking" Dennis Shasha sponsored by the New York Software Industry Association.
82. "Free Parallel Data Mining" ACM Sigmod 1998, Bin Li and Dennis Shasha.
83. "Lessons from Wall Street: case studies in database tuning, configuration, and replication" Dennis Shasha ACM Sigmod 1997, pp. 498-501.

84. "Structural Matching and Discovery in Document Databases" ACM SIGMOD 1997, demonstration. J. T. L. Wang, Dennis Shasha, G. J. S. Chang, L. Relihan and K. Zhang, *Proceedings of the ACM SIGMOD International Conference on Management of Data*, Tucson, Arizona, May 1997, pp. 560-563.
85. "Finding Patterns in Scientific Databases" Dennis Shasha National Science Foundation, Arlington, Virginia. April, 1997.
86. "High Volume Transaction Processing Without Concurrency Control, Two Phase Commit, SQL or C++" Dennis Shasha University of Texas at Austin, February 1997.
87. "High Volume Transaction Processing Without Concurrency Control, Two Phase Commit, SQL or C++" Dennis Shasha Bell Communications Research September 19, 1996
88. "Thinksheet: a tool for tailoring complex documents" ACM SIGMOD 1996, June, 1996, demonstration (Peter Piatko, Roman Yangarber, Daoi Lin, Dennis Shasha)
89. "Hierarchically Split Cube Forests for Decision Support: Description and Tuned Design" Dennis Shasha February 21, 1996, Northeastern University
90. "Thinksheet: a system to help readers and writers of complex documents" Dennis Shasha Bell Communications Research, Morristown New Jersey, October 19, 1995.
91. "Thinksheet: a system to help readers and writers of complex documents" Dennis Shasha Inria, Rocquencourt, France. July 15, 1995.
92. "Pattern Matching and Pattern Discovery in Scientific, Program, and Document Databases" T-L. Wang, K. Zhang and Dennis Shasha at ACM Sigmod 95.
93. "Database Tuning: principles and surprises" Dennis Shasha New York Academy of Sciences (Computer Science section), October, 1994.
94. "Upstart Puzzles" Dennis Shasha New York Academy of Sciences (math section), March, 1993.
95. "Database Tuning: a principled approach" Dennis Shasha ACM SIGMOD conference, June, 1992.
96. "Database Tuning: a principled approach" Dennis Shasha Very Large Database Systems Conference, June, 1992.

97. "D-Over: an optimal algorithm for overloaded real-time systems" Dennis Shasha Institut Nationale de Recherche en Informatique et en Automatique, France, January, 1992.
98. "D-Over: an optimal algorithm for overloaded real-time systems" Dennis Shasha University of Paris, 6, April, 1992.
99. "Promises Versus Assumptions in Database Fault Tolerance," Dennis Shasha and J. Turek *VIIemes Journees Bases de Donnees Avancees* 25-27 Septembre 1991, pp. 349-366.
100. "PLinda: Linda + Transactions + Query Processing + Fault Tolerance" Dennis Shasha ETH, Zurich (December 3, 1991) and Aachen, West Germany (October 7, 1991)
101. "Wait-Free Serializability and Recoverability" Dennis Shasha IBM T. J. Watson Research Laboratories December 19, 1990
102. "Towards a Theory of Hypermedia" Dennis Shasha IBM T. J. Watson Research Laboratories February 16, 1990
103. "A Toolkit for Finding the Editing Distance between Trees" Dennis Shasha IBM T. J. Watson Research Laboratories February 16, 1990

Service

Administrative Positions Within NYU

Director of Graduate Studies in Computer Science, 1999-2005
 Director of the Masters in Information Systems, 1997-1998
 Fellowship Committee, 1986 – 1991.
 Undergraduate Curriculum Committee, 1986 – 1991.
 Policy and Planning Committee, fall, 1988.
 Director of Undergraduate Studies, fall, 1992 – 1995..

Courses Developed

Computers in Principle and Practice, first taught in fall 1989
 Distributed Computing, first taught in fall 1989
 Evolution of Computational Thought, first taught in fall 1993 (in the Department of Liberal Studies)

Editorship

1. Co-editor-in-chief of *Information Systems*, a journal published by Elsevier North-Holland. (with Prof. Gottfried Vossen of the University of Muenster).

2. Series editor *Systems Biology* for Oxford University Press.

Reviewing Service

1. Reviewer for Habilitation Diriger des Recherches of the Universit de Montpellier for Dr. Dino Ienco, July, 2016.
2. International Conference on Scientific and Statistical Database Management, Program Committee member 2016.
3. Vienna Science and Technology Fund, reviewer May 2015
4. Bases de Donnees Avancees 2015, program committee member.
5. ACM Sigmod 2015, program committee member.
6. ACM Sigmod 2014, program committee member.
7. Extended Database Technology (EDBT) 2014 Program committee member.
8. Proceedings of the National Academy of Science, 2013
9. NSF Large Project Proposals, panel 2012
10. KDD 2011 (Knowledge and Data Discovery), program committee
11. Transactions on Knowledge Discovery in Data, 2010
12. VLDB program committee, 2010
13. NSF Large Project Proposals, panel 2010
14. Combinatorial Pattern Recognition, 2010, program committee
15. NSF reviewer, 2009
16. ACM SIGMOD 2008, program chair
17. Genome Research, reviewer
18. VLDB 2007, tutorial co-chair
19. ACM SIGMOD 2007, program committee.
20. Second International Workshop on Self-Managing Database Systems (2007), program committee.
21. ICDE 2007 (23rd International Conference on Data Engineering), program committee.

22. NSF Panel May 10-12 2006 for Arabidopsis 2010 grants (plant biology).
23. KDD 2006 (Knowledge and Data Discovery), program committee
24. ICDM 2005 (International Conference on Data Mining), program committee member
25. VLDB 2005 program committee.
26. VLDB 2004 (Very Large Databases), program committee member.
27. NASA Intelligent Systems reviewer, May 2004.
28. National Science Foundation panel, medium ITR grants. May 19,20 2003.
29. Workshop on Bioinformatics 2003, program committee member.
30. Best paper award committee, 2002 ACM SIGKDD 2002 (Knowledge Discovery and Data Mining)
31. member of program committee, Extending Database Technology, 2002.
32. member of program committee, Scientific Data Management, 2002.
33. member of program committee, KDD 2001, (Knowledge and Data Discovery)
34. member of program committee, COMAD 2000
35. member of program committee, SSDBM2000 (Scientific and Statistical Database Management)
36. member of program committee, VLDB 2000 (Very Large Database Conference)
37. tutorial chair, ACM SIGMOD 99.
38. member of program committee, BDA'98 (French Database Conference).
39. member of program committee, 10th Conference on Scientific and Statistical databases, 1998
40. co-chair of the industrial committee, Very Large Data Base Conference, 1998.
41. member of program committee, Combinatorial Pattern Recognition, 1996.
42. member of program committee, ACM Sigmod 1996.
43. member of program committee, Very Large Data Base Conference 1995.

44. member of program committee, IEEE Real-time Systems Symposium, 1995
45. panel chair, ACM SIGMOD 1995.
46. member of program committee, ACM Principles of Database Systems, 1994.
47. member of program committee, EDBT (extending database technology conference) 1994.
48. Co-chair of program committee, Database Programming Language Workshop, August, 1993.
49. Member of program committee, ACM Sigmod Conference program committee, May, 1993.
50. Member of program committee, 2nd International Symposium on Databases in Parallel and Distributed Systems 1990
51. Member of program committee, Very Large Data Base Conference 1991.

Journal Reviews:

1. IEEE Computational Biology and Bioinformatics 2008.
2. Genome Research, 2003
3. Plant Cell 2003.
4. ACM Trans on Computer Systems, 2003.
5. ACM Crossroads, 2002, in interdisciplinary computer science.
6. National Science Foundation Panel: 1993.
7. National Science Foundation Panel: 1995.
8. Europhysics Letters
9. Articles reviewed for Journal of the ACM,
ACM Transactions on Database Systems,
ACM Transactions on Office Information Systems,
IEEE Journal on Selected Areas in Communications,
Real Time Systems Journal,
IEEE Computer,
IEEE Transactions on Software Engineering,
IEEE Transactions on Computer,
IEEE Transactions on Knowledge and Data Engineering (most recent

2009)
ACM Computing Surveys
Siam Journal on Computing
Acta Informatica,
Journal of Parallel and Distributed Computing,
Journal of Man-Machine Studies,
Letters on Programming Languages and Systems,
Journal of Algorithms,
VLDB Journal,
Algorithmica.

10. Proposals reviewed for National Science Foundation.
11. Proposal reviewed for the French minister of research (1992) and Centre National de Recherche Scientifique (1993).
12. Proposal reviewed for Australian Research Council. (1994).
13. Proposals reviewed for the Israel Science Foundation (1998).
14. Books reviewed for Academic Press, Addison Wesley, Prentice Hall, Morgan Kaufmann, Birkhauser.
15. External appraiser for Univ. of Toronto and Rutgers.

Research Funding

1. Conceptual Data Integration for the Virtual Plant PI: Gloria Coruzzi (FAS-Bio)/Dennis Shasha 6/1/2005 - 5/31/2008 Award number DBI-0445666
2. Genomics of Comparative Seed Evolution Gloria Coruzzi/Dennis Shasha 10/1/2004 - 9/30/2009 Award Number: DBI-0421604
3. High-throughput functional analysis of differentiation network genes Kenneth Birnbaum (FAS-Bio)/Dennis Shasha 9/1/05 - 8/31/09 Award Number: DBI-0519984
4. Primitives for Online Time Series Analysis Dennis Shasha, PI IIS-0414763
5. Arabidopsis 2010: Genomics Approaches to Finding Transcriptional Networks Philip Benfey, PI MCB-0209754
6. Cold Spring Harbor/NYU/NYBG Genomics Consortium 2001-2004. Support for one graduate student.
7. N2010: Nitrogen Networks in Plants National Science Foundation : 2001-2005. Collaborators: Dan Bush, Nigel Crawford and Gloria Coruzzi, UIUC, UCSD and NYU. NSF Award Number: 0115586

8. *ASES: an approximate search engine for structure* 2000-2003. National Science Foundation. Award number: 9988345. Approximately, \$282,440 over three years.
9. Grant: 1F32 GM20716-01 *Research Fellowship Award, Department of Health and Human Services, National Institutes of Health. For project entitled: "Using Computers to Analyze Transcription Factor Networks"* Duration: 3 years Activation date: July 1, 2000. Support for Dr. Ken Birnbaum in our joint project. (\$100,848 over three years)
10. IRI 97-11374, Isolation Testing, 3-yr grant from 9/1/97 to 8/31/00. (www.cs.umb.edu/isotest) PI: Pat and Betty O'Neil 1/2 month per year consultant.
11. *"Pattern Discovery in Combinatorial Databases: Algorithms, Applications, and Software for the Scientific Community.*, 1996-1999. IRI-9531554, approximately \$135,000 per year.
12. *Discovering Motifs in Scientific Databases*, principal investigator, 1993-1995, National Science Foundation IRI-9224601.
13. *The Design and Implementation of Griffin*, Co-principal investigator (with R. Dewar, B. Goldberg, M. Harrison, and E. Schonberg), 1989–1993, Office of Naval Research.
14. *Robust Parallel Computation*, Co-principal investigator (with Z. Kedem), 1991-1992, National Science Foundation.
15. *Performance of Concurrent Data Structure Algorithms*, Principal Investigator, 1989-1991, National Science Foundation.
16. *Research on Semantically-based Concurrency Control for Data Structures*, Principal Investigator, 1985-1988, National Science Foundation.

Who's Who Entries

1. International Authors and Writers Who's Who, fifteenth edition.