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1 Areas of Interest

Cloud computing, Fault-tolerant and Scalable Architectures, Distributed Algorithms, Distributed Databases, Database Concurrency Control and Recovery, Digital Libraries, Multimedia and unstructured data, data warehousing, sensor networks, peer-to-peer systems.

2 Education

Ph.D. in Computer Science, December 1987
     Department of Computer Science, SUNY at Stony Brook, NY 11794-4400

M.S. in Computer Science, January 1984
     Department of Computer Science, SUNY at Stony Brook, NY 11794-4400

B.E.(Hons) in Electrical Engineering with Distinction, July 1980
     Birla Institute of Technology and Science, Pilani, India

3 Employment

- July 1998 – present: Professor, Department of Computer Science, University of California at Santa Barbara.

- June 2010 – September 2010: Visiting Professor, Department of Computer Science, School of Computing, National University of Singapore.

- April 2009 – present: Director, Engineering Computing Infrastructure, University of California at Santa Barbara.

- January 2005 – Decenber 2006: Vice President, Data Solutions and Advertising System, Ask.com.

- July 1999 – June 2003: Chair, Department of Computer Science, University of California at Santa Barbara.

- January 2006 – December 2007: Vice President, Data Solutions and Advertising Systems, ASK.com.

- January 1997 – June 2009: Visiting Senior Research Scientist, NEC Research Laboratories, Cupertino.

- July 1993 – June 1998: Associate Professor, Department of Computer Science, University of California at Santa Barbara.

- August 1994 – December 1994: Visting Scientist, IBM Almaden Research Center.

- July 1987 – June 1993: Assistant Professor, Department of Computer Science, University of California at Santa Barbara.

- June 1983 – June 1987: Research Assistant, Department of Computer Science, SUNY at Stony Brook.

- October 1986 – June 1987: Graduate Assistant, Division of Residence Life, SUNY at Stony Brook.

- September 1982 – May 1983: Teaching Assistant, Department of Computer Science, SUNY at Stony Brook.

- August 1980 – August 1982: Assistant Software Engineer, Tata Burroughs Limited, Bombay, India.

- August 1979 – December 1979: Project Assistant, Department of Electronics, New Delhi, India.

4 Awards

- Gold Medal, Secured first rank in the University, July 1980
  Birla Institute of Technology and Science, Pilani, India.

- Research Initiation Award, National Science Foundation, 1988.

- Distinguished Research Scientist, ACM, 2010.

5 Publications

1. Distributed Multi-version Optimistic Concurrency Control for Relational Databases, with A. J. Bernstein, P. Gupta, and S. Sengupta, The 31st IEEE Computer Society International Conference (COMPCON 86), pp. 416-421, March 1986.

2. Distributed Optimistic Concurrency Control with Reduced Rollback, with A. J. Bernstein, P. Gupta, and S. Sengupta Journal of Distributed Computing, Springer-Verlag, Vol. 2, No. 1, pp. 45–59, January 1987.

3. Quorum Consensus Algorithms for Secure and Reliable Data, with A. El Abbadi, Proceedings of the Sixth IEEE Symposium on Reliable Distributed Systems, pp. 44-53, October 1988.

4. Reducing Storage for Quorum Consensus Algorithms, with A. El Abbadi, Proceedings of the Fourteenth International Conference on Very Large Data Bases, pp. 419-430, August 1988.

5. A Fault-tolerant Client-Server Transaction Model, with P. N. Lockwood, Proceedings of the 1989 Workshop on Unix Transaction Processing, pp. 63-71, May 1989.

6. Modular Synchronization in Multiversion Databases: Version Control and Concurrency Control, with S. Sengupta, Proceedings of the 1989 ACM SIGMOD International Conference on Management of Data, pp. 408-417, June 1989.

7. An Efficient Solution to the Distributed Mutual Exclusion Problem, with A. El Abbadi, Proceedings of the 1989 ACM SIGACT-SIGOPS Symposium of Principles of Distributed Computing, pp. 193-200, August 1989.

8. Recovering from Process Failures in the Time Warp Mechanism, with J. Agre, Proceedings of the Eighth IEEE Symposium on Reliable Distributed Systems, pp. 53-63, October 1989.

9. Efficient Information Dissemination in Computer Networks, with A. Malpani, Proceedings of the Fourteenth Annual Conference on Local Computer Networks, pp. 202-211, October 1989.

10. Exploiting Logical Structures of Replicated Databases, with A. El Abbadi Information Processing Letters, Vol. 30, No. 5, pp. 255–260, January 1990.

11. Integrating Security with Fault-tolerant Databases, with A. El Abbadi, The Computer Journal, Volume 33, Number 1, pp. 71–78, February 1990.

12. Locks with Constrained Sharing, with A. El Abbadi, Proceedings of the ACM Symposium on Principles of Database Systems, pp. 85-93, April 1990, *Selected for the special issue of Journal of Computer and Systems Sciences* .

13. The Tree Quorum Protocol: An Efficient Approach for Managing Replicated Data, with A. El Abbadi, Proceedings of the Sixteenth International Conference on Very Large Data Bases, pp. 243-254, August 1990.

14. Efficient Techniques for Replicated Data Management, with A. El Abbadi, Proceedings of the First IEEE Workshop on Management of Replicated Data (WRMD-I), pp. 48-52, November 1990.

15. Efficient Techniques for Replicated Data Management, with A. El Abbadi, IEEE Computer Society Technical Committee Newsletter on Operating Systems and Application Environments, Volume 4, Number 3, pp. 12-16, Fall 1990.

16. Storage Efficient Replicated Databases, with A. El Abbadi, IEEE Transactions on Knowledge and Data Engineering, Volume 2, Number 3, pp. 342-352, September 1990.

17. Localized-Access Protocols for Replicated Databases, with A. El Abbadi, Editors: J. van Leeuwen and N. Santoro, Title: Distributed Algorithms: Proceedings of the Fourth International Workshop on Distributed Algorithms (September 1990), volume 486 of *Lecture Notes in Computer Science*, pp. 245-262, Springer Verlag, 1991.

18. An Efficient and Fault-tolerant Solution for Distributed Mutual Exclusion, with A. El Abbadi, ACM Transactions on Computer Systems, Volume 8, Number 1, pp. 1-20, February 1991.

19. A Non-blocking Quorum Consensus Protocol for Replicated Data, with A. J. Bernstein, IEEE Transactions on Parallel and Distributed Systems, Volume 2, Number 2, pp. 171-179, April 1991.

20. Using Data Migration for Heterogeneous Databases, with A. El Abbadi, Proceedings of the First International Workshop on Interoperability in Multidatabase Systems, pp. 226-229, April 1991.

21. Performance Characteristics of Protocols with Ordered Shared Locks, with A. El Abbadi, A. E. Lang, Proceedings of the Seventh IEEE International Conference on Data Engineering, pp. 592-601, April 1991.

22. Using Multiversion Data for Non-interfering Execution of Write-only Transactions, with V. Krishnaswamy, Proceedings of the 1991 ACM SIGMOD International Conference on Management of Data, pp. 98-107, May 1991.

23. Managing Replicated Data Efficiently in Distributed Systems, with A. El Abbadi, Proceedings of 1991 IFIP/IEEE International Workshop on Distributed Systems: Operations and Management, October 1991.

24. Increasing Availability and Efficiency of Read-only Transactions, with O. T. Satyanarayanan, Editors: P. Sadanandan and T. M. Vijayaraman, Title: Advances in Data Management: Proceedings of the Third International Conference on Management of Data (December 1991), pp. 87-106, Tata McGraw Hill, 1991.

25. Efficient Dissemination of Information in Computer Networks, with A. Malpani, The Computer Journal, Volume 34, Number 6, pp. 534-541, December 1991.

26. Transaction Management in Database Systems, with A. El Abbadi, Editor: A. K. Elmagarmid, Title: Database Transaction Models, pp. 1-32, Morgan Kaufman, 1992.

27. A Non-restrictive Concurrency Control Protocol for Object Oriented Databases, with A. El Abbadi, Editors: A. Pirotte, C. Delobel, and G. Gottolob, Title: Advances in Database Technology: Proceedings of the Third International Conference on Extending Data Base Technology (April 1992), volume 580 of *Lecture Notes in Computer Science*, pp. 469–482, Springer-Verlag, 1992.

28. Tolerating Bounded Inconsistency for Increasing Concurrency in Databases, with M. H. Wong, Proceedings of the 1992 ACM SIGACT-SIGMOD Symposium on Principles of Database Systems (PODS'92), pp. 236-245, June 1992.

29. An Approach to Eliminate Transaction Blocking in Locking Protocols, with A. El Abbadi, and R. Jeffers, Proceedings of the 1992 ACM SIGACT-SIGMOD Symposium on Principles of Database Systems (PODS'92), pp. 226-235, June 1992.

30. Using Delayed Commitment in Locking Protocols for Real-Time Databases, with A. El Abbadi, and R. Jeffers, Proceedings of the 1992 ACM SIGMOD International Conference on Management of Data (SIGMOD'92), pp. 104-113, June 1992.

31. Type-Specific Coherence for Distributed Shared Memory, with H. V. Leong, Proceedings of the 1992 IEEE International Conference on Distributed Computing Systems, pp. 434-441, June 1992.

32. Resilient Logical Structures for Efficient Management of Replicated Data, with A. El Abbadi, Proceedings of the 1992 International Conference on Very Large Data Bases (VLDB'92), pp. 151-162, August 1992.

33. Context-Specific Synchronization for Atomic Data Types, with M. H. Wong, Editors: J. Biskup and R. Hull, Title: Database Theory: Proceedings of the 1992 International Conference on Database Theory (ICDT'92), October 1992, volume 646 of *Lecture Notes in Computer Science*, pp. 201–215, Springer-Verlag.

34. Dynamic Logical Structures: A Position Statement for Managing Replicated Data, with A. El Abbadi, Proceedings of the Second IEEE Workshop on Management of Replicated Data (WRMD-II), pp. 26-29, Monterey, California, November 1992.

35. Replicated Objects in Time Warp Simulations, with J. R. Agre, Proceedings of the 1992 Winter Simulation Conference (WSC'92), December 1992.

36. The Generalized Tree Quorum Protocol: An Efficient Approach for Managing Replicated Data, with A. El Abbadi, ACM Transactions on Database Systems, Volume 17, Number 4, pp. 689–717, December 1992.

37. Recovering from Multiple Process Failures in the Time Warp Mechanism, with J. Agre, IEEE Transactions on Computers, Volume 41, Number 12, pp. 1504-1514, December 1992.

38. An Efficient and Fault-Tolerant Solution for Distributed Mutual Exclusion, with A. El Abbadi Editors: Pradip K. Srimani and Sunil R. Das, Title: Distributed Mutual Exclusion Algorithms, pp. 124–143, IEEE Computer Society Press, 1992.

39. MDBS: A Modeling and Database System to Support Research in Earth Sciences, with T. R. Smith, J. Su, and A. El Abbadi, Proceedings of the NSF Scientific Database Projects, AAAS Workshop on Advances in Data Management for the Scientists and Engineers, pp. 90-99, February 1993.

40. Database and Modeling Systems for the Earth Sciences with T. R. Smith, J. Su, and A. El Abbadi IEEE Bulletin of the Technical Committee on Data Engineering, Volume 16, Number 1, pp. 33-37, March 1993.

41. Modular Synchronization in Distributed, Multiversion Databases: Version Control and Concurrency Control, with S. Sengupta, IEEE Transactions on Knowledge and Data Engineering, Volume 5, Number 1, pp. 126–137, February 1993.

42. Context-based Synchronization: An Approach Beyond Semantics for Concurrency Control, with M. H. Wong, Proceedings of the ACM SIGACT-SIGMOD Symposium on Principles of Database Systems (PODS'93), pp. 276-287, June 1993.

43. Using Message Semantics to Reduce Rollback in the Time Warp Mechanism, with H. V. Leong and J. R. Agre Editor: Andre Schiper, Title: Distributed Algorithms - Proceedings of the Seventh International Workshop on Distributed Algorithms (September 1993), volume 725 of *Lecture Notes in Computer Science*, pp. 309-323, Springer Verlag, 1993.

44. Consistency and Orderability: Semantics-Based Correctness Criteria for Databases, with A. El Abbadi and A. Singh, ACM Transactions on Database Systems, Volume 18, Number 3, pp. 460–486, September 1993.

45. Efficient Execution of Read-only Transactions in Replicated Multiversion Databases, with O. T. Satyanarayanan, IEEE Transactions on Knowledge and Data Engineering, Volume 5, Number 5, pp. 859–871, October 1993.

46. A Non-restrictive Concurrency Control Protocol for Object Oriented Databases, with A. El Abbadi, Distributed and Parallel Databases, Volume 2, Number 1, pp. 7–32, January 1994.

47. Unifying Concurrency Control and Recovery of Transactions, with G. Alonso, R. Vingralek, Y. Breitbart, A. El Abbadi, Hans-J. Schek, and G. Weikum, Information Systems, Volume 19, Number 1, pp. 101–115, January 1994.

48. On the Power of Reconfiguration in Fault-tolerant Distributed Databases, with A. El Abbadi, Proceedings of the 27th Hawaii International Conference on System Sciences, January 1994.

49. A Unified Approach to Concurrency Control and Transaction Recovery, with G. Alonso, R. Vingralek, D. Agrawal, Y. Breitbart, H. Schek and G. Weikum, Editors: J. Bubenko and K. Jeffery, Title: Advances in Database Technology: Proceedings of the 1994 International Conference on Extending Data Base Technology (EDBT'94), volume of *Lecture Notes in Computer Science*, pp. 123–130, Springer-Verlag.

50. Maya: A Platform for Evaluating Distributed Shared Memory Systems, with M. Choy, H. Leong, and A. Singh, Proceedings of the Fourth Workshop on Scalable Shared Memory Multiprocessors, April 1994.

51. Relative Serializability: An Approach to Relax the Atomicity of Transactions, with J. L. Bruno, A. El Abbadi, and V. Krishnaswamy, Proceedings of the ACM SIGACT-SIGMOD Symposium on Principles of Database Systems (PODS'94), pp. 139–149, May 1994.

52. Reducing Recovery Constraints on Locking Based Protocols, with G. Alonso, and A. El Abbadi, Proceedings of the ACM SIGACT-SIGMOD Symposium on Principles of Database Systems (PODS'94), pp. 129–138, May 1994.

53. The Performance of Two-Phase Commit Protocols in the Presence of Site Failures, with M.-L. Liu and A. El Abbadi, Proceedings of the Twenty-Fourth Annual International Symposium on Fault-Tolerant Computing (FTCS-24), June 1994.

54. Using Message Semantics to Reduce Rollback in Optimistic Message Logging Recovery Schemes, with H. V. Leong, Proceedings of the IEEE International Conference on Distributed Computing Systems (DCS'94), June 1994.

55. Maya: A Simulation Platform for Parallel Architectures and Distributed Shared Memories, with M. Choy, H. Leong, and A. Singh, Proceedings of the ACM/IEEE/SCS 8th Workshop on Parallel and Distributed Simulation, July 1994.

56. Investigating Weak Memories with Maya, with M. Choy, H. Leong, and A. Singh Proceedings of the Third IEEE International Symposium on High Performance Distributed Computing, August 1994.

57. Mixed Consistency: A Model for Parallel Programming, with M. Choy, H. Leong, and A. Singh, Proceedings of the ACM Symposium on Principles of Distributed Computing, August 1994.

58. The Performance of Protocols Based on Locks with Ordered Sharing, with A. El Abbadi and A. E. Lang, IEEE Transactions on Knowledge and Data Engineering, Volume 6, Number 5, pp. 805–818, October 1994.

59. Semantic Locking in Object-Oriented Databases, with R. Resende and A. El Abbadi, Proceedings of the 1994 Symposium on Object Oriented Programming, Systems, and Languages (OOPSLA'94), October 1994.

60. Experiences in the Design of a Kernel for Computational Modeling Systems with A. Saran, A. Sastri, A. El Abbadi, T. Smith, and J. Su Proceedings of the 1994 International Symposium on Management of Data (COMAD'94), pp. 189–206, December 1994.

61. System Abstraction and Interface for Interoperable Server Objects in OMEGA, with K. Park and T. R. Smith, Workshop on Research Issues in Data Engineering: Distributed Object Management, pp. 132–139, 1995.

62. Computational Modeling Systems, with T. R. Smith, J. Su, A. El Abbadi, G. Alonso, and A. Saran Information Systems, Volume 20, Number 2, pp. 127–153, 1995.

63. Ordered Shared Locks for Real-time Databases, with A. El Abbadi, R. Jeffers, and L. Lin VLDB Journal, Volume 4, Number 1, pp. 87–126, 1995.

64. A Token-based Fault-tolerant Distributed Mutual Exclusion Algorithm, with A. El Abbadi, Journal of Parallel and Distributed Computing, Volume 24, Number 2, pp. 164–176, February 1995.

65. Constrained Shared Locks for Increasing Concurrency in Databases, with A. El Abbadi, Journal of Computer and System Sciences, Vol. 51, No. 1, pp. 53–63, August 1995.

66. Context-Specific Synchronization for Atomic Data Types in Object-Oriented Databases, with M. H. Wong, Theoretical Computer Science, Vol. 149, No. 1, pp. '79–'99, September 1995.

67. Exotica/FMDC: Handling Disconnected Clients in a Workflow Management Systems, with G. Alonso, R. Gunthor, M. Kamath, A. El Abbadi, and C. Mohan Proceedings of the Third International Conference on Cooperative Information Systems (COOPIS-95), pp. 99–111, May 1995.

68. Managing Concurrent Activities in Collaborative Environments, with J. L. Bruno, A. El Abbadi, and V. Krishnaswamy Proceedings of the Third International Conference on Cooperative Information Systems (COOPIS-95), pp. 112–124, May 1995.

69. Ordered Sharing: A New Lock Primitive for Database Systems, with A. El Abbadi Information Systems, Volume 20, Number 5, pp. 361–392, 1995.

70. Exotica/FMQM: A Persistent Message-based Architecture for Distributed Workflow Management, with G. Alonso, R. Gunthor, M. Kamath, A. El Abbadi, and C. Mohan Proceedings of the IFIP WG8.1 Working Conference on Information System Development for Decentralized Organizations, August 1995.

71. Exotica: A Project on Advanced Transaction Management and Workflow Systems, with C. Mohan, G. Alonso, A. El Abbadi, R. Günthör, and M. Kamath ACM SIGOIS Bulletin, August 1995.

72. Analysis of Quorum-based Protocols for Distributed $(k + 1)$-exclusion, with O. Egecioglu and A. El Abbadi Proceedings of the First International Computing and Combinatorics Conference (COCOON'95), pp. 161–170, August 1995.

73. On the Implementation of Quorum Consensus Protocol, with M. L. Liu and A. El Abbadi Proceedings of the Eighth International Conference on Parallel and Distributed Computing Systems, pp. 318–325, September 1995.

74. Distributed Access System for Uniform and Scalable Data and Service Access, with A. Sastri and A. El Abbadi Proceedings of the IEEE Symposium on Mass Storage Systems, pp. 284–292, September 1995.

75. The Performance of Replica Control Protocols in the Presence of Failures, with M. L. Liu and A. El Abbadi Proceedings of the Seventh IEEE Symposium on Parallel and Distributed Processing, pp. 470–477, October 1995.

76. Transaction Management in Object-Oriented Databases, with A. El Abbadi Editors: A. K. Elmagarmid and O. Bukhres, Title: Object-Oriented Multidatabase Systems, , pp. 270–297, Prentice Hall, 1996.

77. Advanced Transaction Models in Workflow Contexts with G. Alonso, A. El Abbadi, M. Kamath, R. Günthör, and C. Mohan. Proceedings of the 12th International Conference on Data Engineering, February 1996.

78. Exotica/FMDC: A Workflow Management System for Mobile and Disconnected Clients with G. Alonso, R. Gunter, M. Kamath, D. Agrawal and C. Mohan. Distributed and Parallel Databases: An International Journal, Vol. 4 No. 3, 229–248, July 1996.

79. Using Reconfiguration for Efficient Management of Replicated Data with A. El Abbadi. IEEE Transactions on Knowledge and Data Engineering, Vol. 8, No. 5, 786–801, October 1996.

80. Parallelizing Multidimensional Index Structures with K. V. Ravikanth, A. El Abbadi, A. Singh, and T. R. Smith. Proceedings of the 8th Symposium on Parallel and Distributed Processing (SPDP'96), New Orleans, Louisiana, 376–383, October 1996.

81. Process Synchronization in Workflow Management Systems with G. Alonso and A. El Abbadi. Proceedings of the 8th Symposium on Parallel and Distributed Processing (SPDP'96), New Orleans, Louisiana, 581–589, October 1996.

82. Efficient Retrieval for Browsing Large Image Databases with D. Wu, A. El Abbadi, A. Singh and T. R. Smith. Proceedings of the Fifth International Conference on Information and Knowledge Management (CIKM'96), Rockville, Maryland, 11–18, November 1996.

83. Scientific Modeling using Distributed Resources with A. Saran, A. El Abbadi, T. R. Smith and J. Su. Proceedings of the Fourth ACM Workshop on Advances in Geographic Information Systems (ACM-GIS'96), Rockville, Maryland, 68–75, November 1996.

84. A Java-Based Architecture for Digital Library Data Storage with D. Wu, A. El Abbadi, and A. Singh. Proceedings of SPIE, Vol 2916, International Conference on Multimedia Storage and Archiving Systems, Boston, MA, November 1996.

85. Bounded Inconsistency for Type-specific Concurrency Control with M. H. Wong and H. K. Mak. Distributed and Parallel Databases, Vol. 5, No. 1, 31–76, January 1997.

86. A Brief Survey of Tertiary Storage Systems and Research with S. Prabhakar, A. El Abbadi, and A. Singh. Proceedings of of the 1997 ACM Symposium on Applied Computing, San Jose, CA, 155–157, February 1997.

87. The Performance of Replica Control Protocols in the presence of Site Failures with M. L. Liu and A. El Abbadi. Distributed Systems Engineering The British Computer Society, Vol. 4, No. 2, 59–77, 1997.

88. Classifying Network Architectures for Locating Information Sources with R. Dolin and A. El Abbadi. Proceedings of the 5th International Conference on Database Systems for Advanced Applications (DASFAA '97), Melbourne, Australia, 31–40, April 1997.

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95. Using Broadcast Primitives in Replicated Databases (Brief Announcement) with I. Stanoi and A. El Abbadi. Proceedings of the Sixteenth Annual ACM Symposium on Principles of Distributed Computing (PODC 97), Santa Barbara, CA, 283, August 1997.

96. Exploiting Atomic Broadcast in Replicated Databases with G. Alonso, A. El Abbadi, and I. Stanoi. Proceedings of the Third International Euro-Par Conference (Euro-Par'97 Parallel Processing), Passau, Germany, 496–503, August 1997.

97. Caprera: An Activity Framework for Transaction Processing over Wide-area Networks with S. Kumar and E. K. Kwang. Proceedings of the 23rd International Conference on Very Large Databases (VLDB'97), Athens, Greece, 585–589, August 1997.

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101. Functionality and Limitations of Current Workflow Management Systems with G. Alonso, A. El Abbadi, and C. Mohan. IEEE Expert, Vol. 12, No. 5, September/October 1997.

102. Relative Serializability: An approach for relaxing the Atomicity of transactions with V. Krishnaswamy, J. L. Bruno and A. El Abbadi. Journal of Computer and System Sciences, Vol. 55, No. 2, 344-354, October 1997.

103. Billiard quorums on the grid with O. Egecioglu, and A. El Abbadi. Information Processing Letters, 64 (1997) pp. 9–16.

104. A Java-based Framework for Processing Distributed Objects A. Wu, D. Agrawal, A. El Abbadi and A. Singh. Proceedings of the 16th International Conference on Conceptual Modeling (ER'97), Los Angeles, CA, November 1997, pp. 333–346.

105. Pharos: A scalable distributed architecture for locating heterogeneous information sources R. Dolin, D. Agrawal, A. El Abbadi and L. Dillon. Proceeding of the Sixth International Conference on Information and Knowledge Management (CIKM'97), Las Vegas, Nevada, November 1997, pp.348–355.

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119. WebDB Hypermedia Database System Wen-Syan Li, Yi-Leh Wu, Junho Shim, Kyoji Hirata, Sougata Mukherjea, Divyakant Agrawal, Yoshinori Hara, Reiko Ito, Yutaka Kimura, Kazuyuki Shimazu, and Yukiyoshi Saito Institute of Electronics, Information and Communication Engineers (IEICE) Transactions on Information Systems, 82(1), January 1999.

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306. Where The Blogs Tip: Connectors, Mavens, Salesmen and Translators of the Blogosphere, Ceren Budak, Divyakant Agrawal, Amr El Abbadi, ACM Workshop on Social Media Analytics (SOMA'2010), In conjunction with the International Conference on Knowledge Discovery & Data Mining (KDD 2010).

307. HengHa: Data Harvesting Detection on Hidden Databases, Shiyuan Wang, Divyakant Agrawal, Amr El Abbadi, ACM Workshop on Cloud Computing Security(CCSW 2010), In conjunction with the 17th ACM Conference on Computer and Communications Security (CCS'2010).

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6 Patents

1. System and Method for Intelligent Caching and Refresh of Dynamically Generated and Static Content. Wen-Syan Li, Kasim Selcuk Candan, Divyakant Agrawal, United States patent US 6,591,266, July 8, 2003, US Patent.

2. Method and Apparatus for Intelligent Network bandwidth Utilization for Web Content Fetch and Refresh. Wen-syan Li, Kasim Selcuk Candan, Divyakant Agrawal, United States Patent US 6,701,316, March 2, 2004, US Patent.

3. System and methods for Invalidation to Enable Caching of Dynamically Generated Content. Wen-Syan Li, Kasim Selcuk Candan, Divyakant Agrawal, United States patent US 6,889,234, May 3, 2005, US Patent.

4. System and methods for Invalidation to Enable Caching of Dynamically Generated Content. Wen-Syan Li, Kasim Selcuk Candan, Divyakant Agrawal, United States patent US 7,228,318, June 5, 2007, US Patent.

7 Grants

1. Optimistic Paradigm for Distributed Computing, National Science Foundation, Agency Award Number CCR88-09387, $59,806.

2. A Multiprocessor Workstation Test-bed for Transaction Processing Systems, with J. L. Bruno and A. El Abbadi, University of California MICRO Committee and IBM Yorktown Heights, Award Number #88-179, $150,978.

3. Model for studying Performance of Concurrency Control Protocols, Committee on Research, University of California at Santa Barbara, $5,000.

4. Dealing with Multiple Versions, Replication, and Heterogeneity of Distributed Data, Lawrence Livermore National Laboratory, $15,000.

5. A Multiprocessor Workstation Test-bed for Transaction Processing Systems, with J. L. Bruno and A. El Abbadi, University of California MICRO Committee and IBM Yorktown Heights, Award Number #89-137 (Continued Funding), $44,000.

6. Locks with Constrained Sharing: A Proposal, with A. El Abbadi, National Science Foundation, Agency Award Number IRI-9004998, $191,000.

7. Fault-tolerant Distributed Shared Memory, University of California MICRO Committee and Rockwell International, Award Number #90-005, $18,000.

8. Toward a System that supports Conceptual Modeling in Data Intensive Scientific Investigation, with T. Smith, J. Su, A. El Abbadi, and J. Dozier, National Science Foundation, Agency Award Number IRI-9117094, $610,000.

9. An Infrastructure Facility for Parallel Processing, Additional PI on a multi-PI grant, National Science Foundation, $1,050,000.

10. Implementing and Applying a Modeling and Database System in Support of EOS-scale Earth Science, co-PI on a multi-PI award, National Aero-Space Agency, Agency Award Number NAGW-3888, 5/1/94 – 4/30/97, $722,622.

11. Transactional Memories: A New Abstraction for Parallel Programming, with J. L. Bruno, and A. El Abbadi, Department of Energy and Los Alamos National Laboratory, UC94-B-A-223, 2/1/94 – 9/30/94, $49,500.

12. Transactional Memories: A New Abstraction for Parallel Programming, with J. L. Bruno, and A. El Abbadi, Department of Energy and Los Alamos National Laboratory, UC94-B-A-223, 10/1/94 – 9/30/95, $49,500.

13. Transactional Memories: A New Abstraction for Parallel Programming, with J. L. Bruno, and A. El Abbadi, Department of Energy and Los Alamos National Laboratory, UC94-B-A-223, 10/1/95 – 9/30/96, $49,500.

14. The Alexandria Project: Towards a Distributed Digital Library with Comprehensive Services for Images and Spatially Referenced Information, Investigator on a multi-PI award, NSF/NASA/ARPA IRI94-11330, starts 9/1/94, $4,000,000.

15. High-Speed Cluster of Workstations, with A. Singh, A. El Abbadi, J. L. Bruno, and A. Konheim, NSF CISE CDA-9421978, $110,651.

16. Distributed Shared Memories, with A. Singh, NSF CCR-9505807, $211,613.

17. Information Agents, with A. El Abbadi, CALTRANS 65V250, $27,422.

18. Research Gift from the NEC Corporation, Japan, 1993-94, $5,000.

19. Research Gift from the NEC Corporation, Japan, 1994-95, $5,000.

20. Research Gift from the NEC Corporation, Japan, 1995-96, $5,000.

21. Research Gift from the NEC Corporation, Japan, 1996-97, $5,000.

22. Research Gift from the NEC Corporation, Japan, 1997-98, $35,000.

23. Broadcast and Epidemic Communication in Replicated Databases, with A. El Abbadi, NSF CCR-9712108, $151,000.

24. Research Instrumentation for Active Disks, with A. Acharya, O. Egecioglu, A. El Abbadi, and T. Yang, NSF EIA-9818320, $90,000.

25. ADEPT: A Digital Earth Prototype, with T. R. Smith, M.Goodchild, A. Acharya, and J. Frew, NSF IIS-9817432, $5,400,000.

26. Exploiting Storage Redundancy and Parallelism for Efficient Retrieval, NSF IIS-9970700, with A. El Abbadi, $390,000.

27. Research in Computational Multimedia, with Ken Rose and others, NSF EIA-9986057 (200-02), $133,000.

28. Multimedia and Image Databases, with S. Chandrasekharan, B S. Manjunath, and A. El Abbadi, LLNL ISCR 00-14 (1999-2000), $25,000.

29. Digital Campus: Scalable Information Services on a Campus-wide Wireless Network, with Ambuj Singh (PI) and others, NSF EIA 00-80134 (2000-05), $1,056,302.

30. Synchronization Approaches for Managing Distributed Data, with A. El Abbadi, NSF INT 00-95527 (2001-05), $35,000.

31. Histogram-based Query Estimation for Datasets with different Modalities, with A. El Abbadi, NSF IIS-0209112 (2002-05), $125,000.

32. ITR: Hardware Acceleration of Database Operations, with A. El Abbadi, NSF IIS-0220152 (2002-05), $300,000.

33. Efficient Approaches to Summarize Sparse and Dynamic Datasets, with A. El Abbadi, NSF IIS-0223022 (2003-06), $510,000.

34. Sensor Network Infrastructure, with E. Belding-Royer, A. El Abbadi, C. Krintz, T. Yang, NSF CNF-0423336 (2004-06), $110,000.

35. Sensor Networks research (ICB), with A. Singh and S. Suri, US ARMY (2004-06), $450,000.

36. Exploiting P2P for Privacy in Database Systems, with A. El Abbadi, NEC & UC Discovery, $141,000.

37. CluE: Towards Scalable Primitives for Graph Operations, with B. Zhao, X. Yan, A. El Abbadi, NSF IIS-0847925, $476,832.

38. US Based Student Support to attend ACM SIGSPATIAL, NSF IIS-1049534, $23,941.

39. Transactional Data Stores in the Cloud, with A. El Abbadi, NSF IIS-1018637, $499,336.

40. From a Virtualized Computing Nucleus to a Cloud Computing Universe, with A. El Abbadi, $298,924.

8 Professional Activities

- Associate Editor, Proceedings of the VLDB, 2008-present.

- Editor, Distributed and Parallel Databases, An International Journal, Kluwer Academic Publishers, 1995-2009.

- Associate Editor, VLDB Journal, 2003-2009.

- Member, Program Committee, Eleventh International Conference on Distributed Computing Systems, 1991.

- Panelist, *Fault-tolerance and Reliability in Distributed Systems*, Eleventh International Conference on Distributed Computing Systems, 1991.

- Member, Program Committee, Workshop on Distributed Systems: Operation and Management, Sponsored by IFIP TC 6 WG 6 on Network Management, 1991.

- Member, Program Committee, Eighth International Conference on Data Engineering, 1992.

- Member, Program Committee, Twelfth International Conference on Distributed Computing Systems, 1992.

- Member, Program Committee, Second IEEE Workshop on Management of Replicated Data, 1992.

- Member, Program Committee, Second International Conference on Parallel and Distributed Information Systems, 1992.

- Member, the NSF Database and Expert Systems Review Panel, the National Science Foundation, October 1992.

- Vice-Chair, Program Committee, Thirteenth International Conference on Distributed Computing Systems, 1993.

- Member, Program Committee, International Conference on Very Large Data Bases, 1993.

- Tutorial Instructor, International Conference on Data Engineering, 1993.

- Member, Program Committee, International Conference on Very Large Data Bases, 1994.

- Member, Program Committee, International Conference on Parallel and Distributed Computing Systems, 1994.

- Member, Program Committee, International Conference on Management of Data, 1994 (COMAD'94).

- External Member, PhD Thesis Committee, College of Computing, Georgia Institute of Technology (Student: Ranjit John; Chair: Professor Mustaque Ahamad).

- Member, Program Committee, ACM SIGMOD International Conference on Management of Data, 1995.

- Member, Program Committee, International Conference on Information Systems and Management of Data, 1995.

- Member, Program Committee, International Conference on Parallel and Distributed Systems, 1996.

- Member, Program Committee, ACM Symposium on Principles of Database Systems, 1996.

- Member, Program Committee, International Conference on Parallel and Distributed Information Systems, 1996.

- Member, Program Committee, Fourth International Conference on Parallel and Distributed Information Systems (PDIS'96), 1996.

- Member, Program Committee, Tenth International Workshop on Distributed Algorithms (WDAG'96), 1996.

- Member, Program Committee, International Workshop on Advanced Transaction Models and Architectures (ATMA'96), 1996.

- Member, Program Committee, International Conference on Very Large Data Bases (VLDB'97), 1997.

- Member, Program Committee, 2nd International Symposium on Advances on Databases and Information Systems (ADBIS'98)

- Member, Program Committee, 18th IEEE International Conference on Distributed Computing Systems (ICDCS'98)

- Member, Program Committee, Workshop on *Data Warehouse Design and OLAP Technology* in conjunction with 9th International conference on Database and Expert Systems Applications (DEXA'98)

- Reviewer, ACM Symposium on Principles of Distributed Computing (PODC'98)

- Member, Program Committee, 3rd International Symposium on Advances on Databases and Information Systems (ADBIS'98)

- Member, Program Committee, 1st International Conference on Data Warehousing and Knowledge Discovery (DAWAK'99)

- Member, Program Committee, Workshop on Organizing Web Space in conjunction with the ACM Symposium on Digital Libraries (DL'99)

- Co-Chair, Industrial Program, ACM International Conference on Management of Data (SIGMOD'99)

- Member, Program Committee, IEEE International Conference on Data Engineering (ICDE'2000).

- Member, Program Committee, ACM International Conference on Management of Data (SIGMOD'2000).

- Tutorial Co-Chair, International Conference on Very Large Databases (VLDB'2000).

- Member, Program Committee, 10th International Conference on Management of Data (COMAD'2000).

- Member, Program Committee, 2nd International Conference on Data Warehousing and Knowledge Discovery (DAWAK'2000).

- Member, Program Committee, International Workshop on Data and Networked Information Systems (DNIS'2000).

- Member, Program Committee, 1st International Conference on Multimedia and Expo (ICME'2000).

- Invited Speaker, Workshop on Information Systems and Data Management with High-speed Networks (WISDM'2000).

- Member, Program Committee, International Conference on Mobile Data Management (MDM'2001).

- Associate Program Chair, ACM International Conference on Management of Data (SIGMOD'2001).

- Member, Program Committee, International Conference on Very Large Data Bases (VLDB'2001).

- Member, Program Committee, 18th IEEE International Conference on Data Engineering (ICDE'2002), San Jose, CA, USA.

- Member, Program Committee, 2002 International Database Engineering and Applications Symposium (IDEAS'2002).

- Vice Chair, Distributed Databases Program Committee, 22nd IEEE International Conference on Distributed Computing Systems (ICDCS'2002), Vienna, Austria.

- Vice Chair, Data Warehousing and OLAP Program Committee, 19th IEEE International Conference on Data Engineering (ICDE'2003), Bangalore, India.

- Member, Program Committee, ACM SIGMOD International Conference on Management of Data (SIGMOD'2003), San Diego, CA, USA.

- Member, Program Committee, 7th International Symposium on Spatial and Temporal Databases (SSTD'2001), Redondo Beach, CA, USA.

- Member, Program Committee, 20th IEEE International Conference on Data Engineering (ICDE'2004), Boston, MA, USA.

- Member, Program Committee, 24th IEEE International Conference on Distributed Computing Systems (ICDCS'2004), Vienna, Austria.

- Member, Program Committee, ACM Symposium on Principles of Database Systems (PODS'2004), Paris, France.

- Member, Program Committee, International Workshop on Spatio-temporal Database Management (STDBM'04), Toronto, Canada.

- Member, Program Committee, ACM Symposium on Applied Computing (SAC'2004), Nicosia, Cyprus.

- Member, Program Committee, International Conference on management of Data (COMAD'05), Goa, India.

- Member, Program Committee, 13th ACM International Symposium on Advances in GIS (ACMGIS'05), Bremen, Germany.

- Member, Program Committee, 10th International Conference on Databases for Advanced Applications (DASFAA'05), Beijing, China.

- Member, Program Committee, 4th International Workshop on Databases in Networked Information Systems (DNIS'05), Aizu, Japan.

- Member, Program Committee, IEEE International Conference on Web Services (ICWS'05), Orlando, FL.

- Member, Program Committee, International Conference on Mobile Data Management (MDM'05), Cyprus.

- Member, Program Committee, 4th International ACM Workshop on Data Engineering for Wireless and Mobile Access (MobiDE '05), Baltimore, MD.

- Member, Program Committee, International IEEE Workshop on Network Meets Databases (NetDB'05), Tokyo, Japan.

- Member, Program Committee, IEEE International Symposium on Applications and the Internet (SAINT'05), Trento, Italy.

- Member, Program Committee, International Conference on Very Large Data Bases: Demonstration Track (VLDB'05), Trondheim, Norway.

- Member, Program Committee, ACM Symposium on Applied Computing (SAC'2005), Santa Fe, NM.

- Member, Program Committee, International Conference on Mobile Data Management (MDM'06), Nara, Japan.

- Member, Program Committee, ACM Symposium on Applied Computing (SAC'2006), Dijon, France.

- Member, Program Committee, IEEE International Symposium on Applications and the Internet (SAINT'06), Phoenix, AZ.

- Member, Program Commitee, International Conference on Very Large Data Bases (VLDB'06), Seoul, Korea.

- Member, Program Committee, ACM Symposium on Applied Computing (SAC'2007), Seoul, Korea.

- Member, Program Committee, IEEE International Symposium on Applications and the Internet (SAINT'07), Hiroshima, Japan.

- Member, Program Committee, IEEE International Conference on Data Engineering (ICDE'07), Istanbul, Turkey.

- Member, Program Committee, The Second International Conference on Scalable Information Systems (InfoScale'07), Suzhou, China.

- Member, Program Committee, The 3rd International Workshop on Network meets Databases (NetDB'07), Cambridge, MA.

- Member, Program Committee, 4th International Workshop on Databases in Networked Information Systems (DNIS'07), Aizu, Japan.

- Member, Program Committee, ACM International Conference on Management of Data (SIGMOD'2008), Vancouver, Canada.

- Member, Program Committee, ACM Symposium on Principal of Database Systems (PODS'2008), Vancover, Canada.

- Member, Program Committee, ACM Symposium on Applied Computing (SAC'2008), Brazil.

- Vice Chair, Data Warehousing Track, IEEE Interantional Conference on Data Engineering (ICDE'09), Shanghai, China.

- Member, Program Committee, International Workshop on New Trends in Information Integration (in conjunction with VLDB'2008), Auckland, New Zealand.

- Member, Program Committee, ACM Symposium on Applied Computing (SAC'2009), Honolulu, Hawaii.

- Member, Program Committee, ACM International Conference on Mobile Data Management (MDM'2009), Taipei, Taiwan.

- Member, Program Committee, 10th International Conference on Web Information System Engineering(WISE'09), Poznan, Poland.

- General Co-Chair, ACM SIGSPATIAL International Conference on Advances on Geographical Information Systems, Seattle, WA.

- Program Chair, ACM International Conference on Management of Data (SIGMOD'10), Indianapolis, IN.

- General Chair, ACM SIGSPATIAL International Conference on Advances on Geographical Information Systems, San Jose, CA.

- Member, Program Committee, 14th International Conference on Extending Database Technology (EDBT'2011), Uppsala, Sweden.

- Member, Program Committee, 37th International Conference on Very Large Data Bases (VLDB'2011), Seattle, WA.

- Reviewer for the National Science Foundation, the Swiss National Science Foundation, the Natural Sciences and Engineering Research Council of Canada, and the Hong Kong Research Council.

- Reviewer for numerous databases and distributed systems journals.

9 Doctoral Students

1. Man Hon Wong, Associate Professor, Chinese University of Hong Kong, Hong Kong

2. Hong Va Leong, Associate professor, Hong Kong Polytechnic, Hong Kong

3. Mei-Ling Liu, Professor, Cal Poly, San Louis Obispo, California

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21. Alireza Aghili, TeraData, Inc.

22. Huagang Li, Oracle, Inc.

23. Fatih Emecki, LinkedIn, Inc.

24. Chiranjeeb Buragohain, Amazon.com

25. Ahmed Metwally, Google, Inc.

26. Nagender Bandi, Oracle, Inc.

27. Arsany Sawires, NEC Laboratories America.

28. Ping Wu, Google Inc.

29. Shyam Antony, Microsoft Inc.

30. Sudipto Das, *in-progress.*

31. Shiyuan Wang, *in-progress.*

32. Ceren Budak, *in-progress.*

33. Aaron Elmore, *in-progress.*

34. Hatem Abdelghani Mahmoud, *in-progress.*