

# **RESUME**

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## Section A: EDUCATION and EXPERIENCE

### EDUCATION

**Doctor of Philosophy** (August 1991)  
Computer Science, University of Wisconsin – Madison, U.S.A.

**Master of Science** (August 1987)  
Computer Science, University of Wisconsin – Madison, U.S.A.

**Bachelor of Technology** (August 1985)  
Electronics, Indian Institute of Technology – Madras, India.

### EXPERIENCE

**Department Chair** (August 2014 – )  
*Dept. of Computer Science & Automation, Indian Institute of Science, Bangalore, India.*

**HAG Professor** (January 2016 – )  
*Dept. of Computational & Data Sciences and Dept. of Computer Science & Automation, Indian Institute of Science, Bangalore, India.*  
Research and teaching in database systems

**HAG Professor** (September 2010 – )  
*Supercomputer Education & Research Centre and Dept. of Computer Science & Automation, Indian Institute of Science, Bangalore, India.*  
Research and teaching in database systems

**Research Staff Member** (August 2012 – July 2013)  
*IBM India Research Lab, Bangalore*  
(Sabbatical) Research in database systems

**Professor** (September 2004 – September 2010)  
*Supercomputer Education & Research Centre and Dept. of Computer Science & Automation, Indian Institute of Science, Bangalore, India.*  
Research and teaching in database systems

**Associate Professor** (December 1998 – September 2004)  
*Supercomputer Education & Research Centre and Dept. of Computer Science & Automation, Indian Institute of Science, Bangalore, India.*  
Research and teaching in database systems and real-time systems

**Member, Technical Staff** (August 1999 – July 2000)  
*Lucent Bell Labs, Murray Hill, New Jersey, U.S.A.*  
(Sabbatical) Research in database systems

**Assistant Professor** (October 1992 – December 1998 )  
*Supercomputer Education & Research Centre and Dept. of Computer Science & Automation, Indian Institute of Science, Bangalore, India.*  
Research and teaching in database systems and real-time systems

**Research Fellow** (September 1991 – September 1992)  
*Inst. for Systems Research, University of Maryland – College Park, U.S.A.*  
Principal researcher of the MANDATE project for development of database systems for enterprise network management.

**Summer Intern** (June 1990 – August 1990)

*IBM T. J. Watson Research Center, Yorktown Heights, New York, U.S.A.*

Design and performance analysis of the distributed WDL (Wait Depth Limited) concurrency control algorithm.

**Summer Intern** (June 1988 – August 1988)

*Microelectronics and Computer Technology Corp., Austin, Texas, U.S.A.*

Development of algorithms for database synthesis, loading and redistribution to aid in performance evaluation of the BUBBA parallel database machine.

**Research Assistant** (September 1988 – August 1991)

*Computer Sciences Dept., University of Wisconsin – Madison, U.S.A.*

Design, analysis and performance evaluation of scheduling and concurrency control algorithms for Real-Time Database Systems.

**Teaching Assistant** (August 1985 – May 1987)

*Computer Sciences Dept., University of Wisconsin – Madison, U.S.A.*

Graded assignments and exams, taught tutorials, and conducted laboratory sessions.

## **Section B: RESEARCH PUBLICATIONS and PATENTS/COPYRIGHTS**

### **THESES**

1. "Transaction Scheduling in Firm Real-Time Database Systems"  
J. Haritsa  
*Ph. D. Thesis*, Univ. of Wisconsin (Madison), August 1991
2. "Adaptive Delta Pulse-Code Modulation"  
J. Haritsa  
*B. Tech. Thesis*, Indian Institute of Technology (Madras), August 1985

### **EDITOR of SPECIAL ISSUE**

3. "Privacy and Trust Management in Cloud and Distributed Systems"  
S. Cheung, Y. Sun, K. Aberer, J. Haritsa, B. Horne and K. Hwang  
*IEEE Transactions on Information Forensics and Security (TIFS)*, vol. 8, no. 6, June 2013, pgs. 835-837
4. "Testing and Tuning of Database Systems"  
J. Haritsa  
*IEEE Data Engineering Bulletin*, vol. 31, no. 1, March 2008, pg. 2
5. "Multi-lingual Information Systems"  
J. Haritsa  
*IEEE Data Engineering Bulletin*, vol. 30, no. 1, March 2007, pg. 4
6. "Real-Time Database Systems in the New Millennium"  
J. Haritsa and K. Ramamritham  
*Journal of Real-Time Systems*, vol. 19, no. 3, November 2000, pgs. 205-208

### **BOOK CHAPTERS**

7. "Privacy Issues in Association Rule Mining"  
A. Gkoulalas-Divanis, J. Haritsa and M. Kantarcioglu  
*Frequent Pattern Mining*, Springer,  
eds. C. Aggarwal and J. Han, 2014, Chapter 15, pgs. 369 - 401
8. "Mining Association Rules under Privacy Constraints"  
J. Haritsa  
*Privacy-Preserving Data Mining: Models and Algorithms*, Springer,  
eds. C. Aggarwal and P. Yu, 2008, Chapter 10, pgs. 237-264
9. "Real-Time Index Concurrency Control"  
J. Haritsa and S. Seshadri  
*Real-time Database Systems: Architecture and Techniques*, Kluwer Academic Publishers, vol. 593, Kluwer International Series in Engineering and Computer Science,  
eds. Tei-Wei Kuo and Kam-Yiu Lam, November 2000, Chapter 6, pgs. 59-74
10. "Secure Real-Time Transaction Processing"  
J. Haritsa and B. George  
*Real-time Database Systems: Architecture and Techniques*, Kluwer Academic Publishers, vol. 593, Kluwer International Series in Engineering and Computer Science,  
eds. Tei-Wei Kuo and Kam-Yiu Lam, November 2000, Chapter 11, pgs. 143-160

11. “Real-Time Commit Processing”  
 J. Haritsa, K. Ramamritham and R. Gupta  
*Real-time Database Systems: Architecture and Techniques*, Kluwer Academic Publishers, vol. 593, *Kluwer International Series in Engineering and Computer Science*, eds. Tei-Wei Kuo and Kam-Yiu Lam, November 2000, Chapter 17, pgs. 229-246
12. “Firm Real-Time Concurrency Control”  
 J. Haritsa, M. Carey and M. Livny  
*Performance of Concurrency Control Mechanisms in Centralized Database Systems*, Prentice-Hall, ed. V. Kumar, October 1995, Chapter 17, pgs. 461-493
13. “Dynamic Real-Time Optimistic Concurrency Control”  
 J. Haritsa, M. Carey and M. Livny  
*Advances in Real-Time Systems*, IEEE Computer Society Press, eds. J. Stankovic and K. Ramamritham, October 1993, Chapter 9, pgs. 664-673

## INTERNATIONAL REFEREED JOURNALS

14. “Plan Bouquets: A Fragrant Approach to Robust Query Processing”  
 A. Dutt and J. Haritsa  
*ACM Trans. on Database Systems (TODS)*, vol. 41, issue 2, article no. 11, June 2016
15. “FRAPP: A Framework for High-Accuracy Privacy-Preserving Mining”  
 S. Agrawal, J. Haritsa and B. Prakash  
*Intl. Journal on Data Mining and Knowledge Discovery*, Springer, vol. 18, no. 1, February 2009, pgs. 101-139
16. “Schema-conscious XML Indexing”  
 K. Leela and J. Haritsa  
*Information Systems*, Elsevier Science Publishers, vol. 32, no. 2, April 2007, pgs. 344-364
17. “The Building of BODHI, a Bio-diversity Database System”  
 B. Srikanta, J. Haritsa and U. Sen  
*Information Systems*, Elsevier Science Publishers, (Special Issue on Bioinformatics and Biological Data Management, Editors: M. Zaki and J. Wang), vol. 28, no. 4, June 2003, pgs. 347-367
18. “MIRROR: A State-Conscious Concurrency Control Protocol for Replicated Real-Time Databases”  
 M. Xiong, K. Ramamritham, J. Haritsa and J. Stankovic  
*Information Systems*, Elsevier Science Publishers, vol. 27, no. 4, June 2002, pgs. 277-297
19. “On-line Scheduling to Maximize Task Completions”  
 S. Baruah, J. Haritsa and N. Sharma  
*Journal of Combinatorial Mathematics and Combinatorial Computing (JCMCC)*, vol. 39, 2001, pgs. 65-78
20. “DIASPORA: A Highly Distributed Web-Query Processing System”  
 M. Ramanath and J. Haritsa  
*World Wide Web Journal, Special Issue on WWW Data Management*, Baltzer Science Publishers, vol. 3, no. 2, 2000, pgs. 111-124
21. “Quantifying the Utility of the Past in Mining Large Databases”  
 V. Pudi and J. Haritsa  
*Information Systems*, Elsevier Science, vol. 25, no. 5, July 2000, pgs. 323-343

22. "Real-Time Index Concurrency Control"  
J. Haritsa and S. Seshadri  
*IEEE Trans. on Knowledge and Data Engineering (TKDE), vol. 12, no. 3, May/June 2000, pgs. 429–447*
23. "Secure Buffering in Firm Real-Time Database Systems"  
B. George and J. Haritsa  
*Intl. Journal on Very Large Data Bases (VLDB), Special Issue on Best Papers from VLDB'98 Conference, Springer-Verlag, vol. 8, no. 3, February 2000, pgs. 178–198*
24. "The PROMPT Real-Time Commit Protocol"  
J. Haritsa, K. Ramamritham and R. Gupta  
*IEEE Trans. on Parallel and Distributed Systems (TPDS), vol. 11, no. 2, February 2000, pgs. 160–181*
25. "Secure Concurrency Control in Firm Real-Time Database Systems"  
B. George and J. Haritsa  
*Intl. Journal on Distributed and Parallel Databases (JDPD), Special Issue on Security, Kluwer Academic Publishers, vol. 8, no. 1, January 2000, pgs. 41–83*
26. "Scheduling for Overload in Real-Time Systems"  
S. Baruah and J. Haritsa  
*IEEE Trans. on Computers (ToC), vol. 46, no. 9, September 1997, pgs. 1034–1039*
27. "Integrating Standard Transactions in Firm Real-Time Database Systems"  
S. Thomas, S. Seshadri and J. Haritsa  
*Information Systems, Elsevier Science, vol. 21, no. 1, March 1996, pgs. 3–28*
28. "Real-Time Index Concurrency Control"  
J. Haritsa and S. Seshadri  
*ACM SIGMOD Record, vol. 25, no. 1, March 1996, pgs. 13–17*
29. "MANDATE: Managing Networks using Database Technology"  
J. Haritsa, M. Ball, N. Roussopoulos, A. Datta and J. Baras  
*IEEE Journal on Selected Areas in Communications (JSAC), vol. 11, no. 9, December 1993, pgs. 1360–1372*
30. "Distributed Concurrency Control based on Limited Wait-Depth"  
P. Franaszek, J. Haritsa, J. Robinson and A. Thomasian  
*IEEE Trans. on Parallel and Distributed Systems (TPDS), vol. 4, no. 11, November 1993, pgs. 1246–1264*
31. "Value-Based Scheduling in Real-Time Database Systems"  
J. Haritsa, M. Carey and M. Livny  
*Intl. Journal on Very Large Data Bases (VLDB), Springer-Verlag, vol. 2, no. 2, April 1993, pgs. 117–152*
32. "Data Access Scheduling in Firm Real-Time Database Systems"  
J. Haritsa, M. Carey and M. Livny  
*Journal of Real-Time Systems, Kluwer Academic Publishers, vol. 4, no. 4, September 1992, pgs. 203–241*

## HIGHLY-SELECTIVE INTERNATIONAL REFEREED CONFERENCES

33. "Platform-independent Robust Query Processing"  
S. Karthik, J. Haritsa, S. Kenkre and V. Pandit  
*Proc. of 32nd Intl. Conf. on Data Engineering (ICDE, Helsinki, Finland, May 2016*

34. "CODD: A Dataless Approach to Big Data Testing"  
Ashoke S. and J. Haritsa  
*Proc. of 41st Intl. Conf. on Very Large Data Bases (VLDB), Hawaii, USA, September 2015*
35. "Towards Making Database Systems PCM-Compliant"  
V. Garg, A. Singh and J. Haritsa  
*Proc. of 26th Intl. Conf. on Database and Expert Systems Applications (DEXA), Valencia, Spain, September 2015*
36. "QUEST: An Exploratory Approach to Robust Query Processing"  
A. Dutt, S. Neelam and J. Haritsa  
*Proc. of 40th Intl. Conf. on Very Large Data Bases (VLDB), Hangzhou, China, September 2014*  
[Received the Best Software Demonstration award.]
37. "Plan Bouquets: Query Processing without Selectivity Estimation"  
A. Dutt and J. Haritsa  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Snowbird, USA, June 2014*
38. "IceCube: Efficient Targeted Mining in Data Cubes"  
S. Harsola, P. Deshpande and J. Haritsa  
*Proc. of 23rd IEEE Intl. Conf. on Data Mining (ICDM), Brussels, Belgium, December 2012*
39. "Analyzing Plan Diagrams of XQuery Optimizers"  
Bruhathi H. S. and J. Haritsa  
*Proc. of 23rd Intl. Conf. on Database and Expert Systems Applications (DEXA), Vienna, Austria, September 2012*
40. "Peak Power Plays in Database Engines"  
M. Kunjir, P. Birwa and J. Haritsa  
*Proc. of 15th Intl. Conf. on Extending DataBase Technology (EDBT), Berlin, Germany, March 2012*
41. "The Picasso Database Query Optimizer Visualizer"  
J. Haritsa  
*Proc. of 36th Intl. Conf. on Very Large Data Bases (VLDB), Singapore, September 2010 (demo)*  
published as *PVLDB Journal* vol.3, no.2, September 2010  
[Received the Best Software Demonstration award.]
42. "On the Stability of Plan Costs and the Costs of Plan Stability"  
M. Abhirama, S. Bhaumik, A. Dey, H. Shrimall and J. Haritsa  
*Proc. of 36th Intl. Conf. on Very Large Data Bases (VLDB), Singapore, September 2010*  
published as *PVLDB Journal* vol.3, no. 1, September 2010
43. "Identifying Robust Plans through Plan Diagram Reduction"  
Harish D., P. Darera and J. Haritsa  
*Proc. of 34th Intl. Conf. on Very Large Data Bases (VLDB), Auckland, New Zealand, August 2008, pgs. 1124-1140*  
published as *PVLDB Journal* vol.1, no.1 August 2008, pgs. 1124-1140
44. "Efficiently Approximating Query Optimizer Plan Diagrams"  
A. Dey, S. Bhaumik, Harish D. and J. Haritsa *Proc. of 34th Intl. Conf. on Very Large Data Bases (VLDB), Auckland, New Zealand, August 2008, pgs. 1325-1336*  
published as *PVLDB Journal* vol.1, no.2 August 2008, pgs. 1325-1336
45. "On the Production of Anorexic Plan Diagrams"  
Harish D., P. Darera and J. Haritsa

*Proc. of 33rd Intl. Conf. on Very Large Data Bases (VLDB), Vienna, Austria, September 2007, pgs. 1081–1092*

46. “Robust Heuristics for Scalable Optimization of Complex SQL Queries”  
G. Das and J. Haritsa  
*Proc. of 23rd IEEE Intl. Conf. on Data Engineering (ICDE), Istanbul, Turkey, April 2007, pgs. 1281-1283 (poster)*

47. “Holistic Schema Mappings for XML-on-RDBMS”  
P. Patil and J. Haritsa  
*Proc. of 11th Intl. Conf. on Database Systems for Advanced Applications (DASFAA), Singapore, April 2006*  
published as *Database Systems for Advanced Applications*, Springer, Lecture Notes in Computer Science (LNCS) 3882,  
eds. M. Lee, K. Tan and V. Wuwongse, pgs. 741-756

48. “On Pushing Multilingual Query Operators into Relational Engines”  
A. Kumaran, P. Chowdary and J. Haritsa  
*Proc. of 22nd IEEE Intl. Conf. on Data Engineering (ICDE), Atlanta, USA, April 2006*

49. “Integrating Code and Fragment Caching to Speedup Dynamic Webpage Construction”  
Suresha and J. Haritsa  
*Proc. of 12th Intl. Conf. on Management of Data (COMAD), Hyderabad, India, December 2005, pgs. 112-121*

50. “Search-Optimized Suffix-tree Storage for Biological Applications”  
S. Bedathur and J. Haritsa  
*Proc. of 12th IEEE Intl. Conf. on High Performance Computing (HiPC), Goa, India, December 2005*  
published as *High Performance Computing - HiPC 2005*, Springer, Lecture Notes in Computer Science (LNCS) 3769,  
eds. D. Bader, M. Parashar, V. Sridhar and V. Prasanna, pgs. 29-39

51. “Analyzing Plan Diagrams of Database Query Optimizers”  
N. Reddy and J. Haritsa  
*Proc. of 31st Intl. Conf. on Very Large Data Bases (VLDB), Trondheim, Norway, August 2005, pgs. 1228-1240*

52. “SemEQUAL: Multilingual Semantic Matching in Relational Systems”  
A. Kumaran and J. Haritsa  
*Proc. of 10th Intl. Conf. on Database Systems for Advanced Applications (DASFAA), Beijing, China, April 2005*  
published as *Database Systems for Advanced Applications*, Springer, Lecture Notes in Computer Science (LNCS) 3453,  
eds. L. Zhou, B. Ooi and X. Meng, pgs. 214-225

53. “A Framework for High-Accuracy Privacy-Preserving Mining”  
S. Agrawal and J. Haritsa  
*Proc. of 21st IEEE Intl. Conf. on Data Engineering (ICDE), Tokyo, Japan, April 2005, pgs. 193-204*

54. “IMAX: Incremental Maintenance of Schema-based XML Statistics”  
M. Ramanath, L. Zhang, J. Freire and J. Haritsa  
*Proc. of 21st IEEE Intl. Conf. on Data Engineering (ICDE), Tokyo, Japan, April 2005, pgs. 273-284*

55. "On Semantic Matching of Multilingual Attributes in Relational Systems"  
 A. Kumaran and J. Haritsa  
*Proc. of 13th ACM Intl. Conf. on Information and Knowledge Management (CIKM), Washington DC, USA, November 2004, pgs. 230-231 (poster)*

56. "Green Query Optimization: Taming Query Optimization Overheads through Plan Recycling"  
 P. Sarda and J. Haritsa  
*Proc. of 30th Intl. Conf. on Very Large Data Bases (VLDB), Toronto, Canada, September 2004, pgs. 1333-1336 (demo)*

57. "BODHI: A Database Habitat for Bio-diversity Information"  
 S. Bedathur, A. Kadlag, J. Freire and J. Haritsa  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Paris, France, June 2004, pgs. 953-954 (demo)*

58. "LexEQUAL: Multilexical Matching Operator in SQL"  
 A. Kumaran and J. Haritsa  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Paris, France, June 2004, pgs. 949-950 (demo)*

59. "Providing Diversity in K-Nearest Neighbor Query Results"  
 A. Jain, P. Sarda and J. Haritsa  
*Proc. of 8th Pacific Asia Conf. on Knowledge Discovery and Data Mining (PAKDD), Sydney, Australia, May 2004*  
 published as *Advances in Knowledge Discovery and Data Mining, Springer, Lecture Notes in Artificial Intelligence (LNAI) 3056, eds. H. Dai, R. Srikant and C. Zhang, pgs. 404-413*

60. "On Reducing Dynamic Web Page Construction Times"  
 Suresha and J. Haritsa  
*Proc. of 6th Asia Pacific Web Conference (APWEB), Hangzhou, China, April 2004*  
 published as *Advanced Web Technologies and Applications, Springer, Lecture Notes in Computer Science (LNCS) 3007, eds. J. Xu Yu, X. Lin, H. Lu and Y. Zhang, pgs. 722-731*

61. "SPINE: Putting Backbone into String Indexing"  
 N. Neelapala, R. Mittal and J. Haritsa  
*Proc. of 20th IEEE Intl. Conf. on Data Engineering (ICDE), Boston, USA, March 2004, pgs. 325-336*

62. "Engineering a Fast Online Persistent Suffix Tree Construction"  
 S. Bedathur and J. Haritsa  
*Proc. of 20th IEEE Intl. Conf. on Data Engineering (ICDE), Boston, USA, March 2004, pgs. 720-731*

63. "LexEQUAL: Supporting Multilexical Queries in SQL"  
 A. Kumaran and J. Haritsa  
*Proc. of 20th IEEE Intl. Conf. on Data Engineering (ICDE), Boston, USA, March 2004, pgs. 845 (poster)*

64. "LexEQUAL: Supporting Multi-script Matching in Database Systems"  
 A. Kumaran and J. Haritsa  
*Proc. of 9th Intl. Conf. on Extending DataBase Technology (EDBT), Heraklion-Crete, Greece, March 2004*

published as *Advances in Database Technology - EDBT 2004*, Springer, *Lecture Notes in Computer Science (LNCS)* 2992,  
*eds. E. Bertino, S. Christodoulakis, D. Plexousakis, V. Christophides, M. Koubarakis, K. Bohm and E. Ferrari*, pgs. 292-309

65. “On Addressing Efficiency Concerns in Privacy-Preserving Mining”  
 S. Agrawal, V. Krishnan and J. Haritsa  
*Proc. of 9th Intl. Conf. on Database Systems for Advanced Applications (DASFAA), Jeju Island, Korea, March 2004*  
 published as *Database Systems for Advanced Applications*, Springer, *Lecture Notes in Computer Science (LNCS)* 2973,  
*eds. Y. Lee, J. Li, K. Y. Whang and D. Lee*, pgs. 113-124

66. “On Incorporating Iceberg Queries in Query Processors”  
 K. Leela, P. Tolani and J. Haritsa  
*Proc. of 9th Intl. Conf. on Database Systems for Advanced Applications (DASFAA), Jeju Island, Korea, March 2004*  
 published as *Database Systems for Advanced Applications*, Springer, *Lecture Notes in Computer Science (LNCS)* 2973,  
*eds. Y. Lee, J. Li, K. Y. Whang and D. Lee*, pgs. 431-442

67. “Supporting Exploratory Queries in Database-Centric Web Applications”  
 A. Kadlag, A. Wanjari and J. Haritsa  
*Proc. of 9th Intl. Conf. on Database Systems for Advanced Applications (DASFAA), Jeju Island, Korea, March 2004*  
 published as *Database Systems for Advanced Applications*, Springer, *Lecture Notes in Computer Science (LNCS)* 2973,  
*eds. Y. Lee, J. Li, K. Y. Whang and D. Lee*, pgs. 594-605

68. “Searching for Efficient XML-to-Relational Mappings”  
 M. Ramanath, J. Freire, J. Haritsa and P. Roy  
*Proc. of XML Database Symposium (XSym), Berlin, Germany, September 2003*  
 published as *Database and XML Technologies*, Springer, *Lecture Notes in Computer Science (LNCS)* 2824,  
*eds. Z. Bellahsene, A.B. Chaudhri, E. Rahm, M. Rys and R. Unland*, pgs. 19-36

69. “On the Costs of Multi-Lingualism in Database Systems”  
 A. Kumaran and J. Haritsa  
*Proc. of 29th Intl. Conf. on Very Large Data Bases (VLDB), Berlin, Germany, September 2003*,  
 pgs. 105-116

70. “PLASTIC: Reducing Query Optimization Overheads through Plan Recycling”  
 V. Sengar and J. Haritsa  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, San Diego, California, USA, June 2003*, pg. 676 (demo)

71. “Reducing Rule Covers with Deterministic Error Bounds”  
 V. Pudi and J. Haritsa  
*Proc. of 7th Pacific Asia Conf. on Knowledge Discovery and Data Mining (PAKDD), Seoul, Korea, May 2003*  
 published as *Advances in Knowledge Discovery and Data Mining*, Springer, *Lecture Notes in Artificial Intelligence (LNAI)* 2637,  
*eds. K. Shim, J. Srivastava, K. Y. Whang and B. K. Yi*, pgs. 313-324

72. "Bridging the XML-Relational Divide with LegoDB: A Demonstration"  
 P. Bohannon, J. Freire, J. Haritsa, M. Ramanath, P. Roy and J. Simeon  
*Proc. of 19th IEEE Intl. Conf. on Data Engineering (ICDE), Bangalore, India, March 2003,*  
*pgs. 759-761 (demo)*

73. "Generalized Closed Itemsets: A Technique for Improving the Conciseness of Rule Covers"  
 V. Pudi and J. Haritsa  
*Proc. of 19th IEEE Intl. Conf. on Data Engineering (ICDE), Bangalore, India, March 2003,*  
*pgs. 714-716 (poster)*

74. "Plan Selection based on Query Clustering"  
 A. Ghosh, J. Parikh, V. Sengar and J. Haritsa  
*Proc. of 28th Intl. Conf. on Very Large Data Bases (VLDB), Hong Kong, China, August 2002,*  
*pgs. 179-190*

75. "Maintaining Data Privacy in Association Rule Mining"  
 S. Rizvi and J. Haritsa  
*Proc. of 28th Intl. Conf. on Very Large Data Bases (VLDB), Hong Kong, China, August 2002,*  
*pgs. 682-693*

76. "LegoDB: Customizing Relational Storage for XML Documents"  
 P. Bohannon, J. Freire, J. Haritsa, M. Ramanath, P. Roy and J. Simeon  
*Proc. of 28th Intl. Conf. on Very Large Data Bases (VLDB), Hong Kong, China, August 2002,*  
*pgs. 1091-1094 (demo)*

77. "StatiX: Making XML Count"  
 J. Freire, J. Haritsa, M. Ramanath, P. Roy and J. Simeon  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Madison, Wisconsin, USA, May 2002,*  
*pgs. 181-192*

78. "On the Efficiency of Association Rule Mining Algorithms"  
 V. Pudi and J. Haritsa  
*Proc. of 6th Pacific Asia Conf. on Knowledge Discovery and Data Mining (PAKDD), Taipei, Taiwan, May 2002*  
 published as *Advances in Knowledge Discovery and Data Mining, Springer, Lecture Notes in Artificial Intelligence (LNAI) 2336,*  
*eds. M. Chen, P. Yu and B. Liu, pgs. 80-91*

79. "XGrind: A Query-Friendly XML Compressor"  
 P. Tolani and J. Haritsa  
*Proc. of 18th IEEE Intl. Conf. on Data Engineering (ICDE), San Jose, USA, February 2002,*  
*pgs. 225-234*

80. "How Good are Association-Rule Mining Algorithms?"  
 V. Pudi and J. Haritsa  
*Proc. of 18th IEEE Intl. Conf. on Data Engineering (ICDE), San Jose, USA, February 2002,*  
*pg. 276 (poster)*

81. "Design and Implementation of a Biodiversity Information Management System"  
 B. Srikanta and J. Haritsa  
*Proc. of 10th Intl. Conf. on Management of Data (COMAD), Pune, India, December 2000, pgs. 121-134*  
 [Received the Best Paper award.]

82. "Adding PEP to Real-Time Distributed Commit Processing"  
 J. Haritsa and K. Ramamritham

*Proc. of 21st IEEE Real-Time Systems Symposium (RTSS), Orlando, Florida, USA, November 2000, pgs. 37–46*

83. “Turbo-charging Vertical Mining of Large Databases”  
 P. Shenoy, J. Haritsa, S. Sudarshan, G. Bhalotia, M. Bawa and D. Shah  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Dallas, Texas, USA, May 2000, pgs. 22–33*

84. “Distributed Query Processing on the Web”  
 N. Gupta, J. Haritsa and M. Ramanath  
*Proc. of 16th IEEE Intl. Conf. on Data Engineering (ICDE), San Diego, USA, February 2000, pg. 84 (poster)*

85. “Secure Buffering in Firm Real-Time Database Systems”  
 B. George and J. Haritsa  
*Proc. of 24th Intl. Conf. on Very Large Data Bases (VLDB), New York, USA, August 1998, pgs. 464–475*  
 [Selected in the Best Paper Category.]

86. “More Optimism about Real-Time Distributed Commit Processing”  
 R. Gupta, J. Haritsa and K. Ramamritham  
*Proc. of 18th IEEE Real-Time Systems Symposium (RTSS), San Francisco, California, USA, December 1997, pgs. 123–133*

87. “Secure Transaction Processing in Firm Real-Time Database Systems”  
 B. George and J. Haritsa  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Tucson, Arizona, USA, May 1997, pgs. 462–473*

88. “Revisiting Commit Processing in Distributed Database Systems”  
 R. Gupta, J. Haritsa and K. Ramamritham  
*Proc. of ACM SIGMOD Intl. Conf. on Management of Data, Tucson, Arizona, USA, May 1997, pgs. 486–497*

89. “Commit Processing in Distributed Real-Time Database Systems”  
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93. “ROBUST: A Hardware Solution to Real-Time Overload”  
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97. “On Being Optimistic about Real-Time Constraints”  
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99. “CODD: COnstructing Dataless Databases”  
 R. Trivedi, I. Nilavalagan and J. Haritsa  
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100. “An Integrated Approach for Reducing Dynamic Web Page Construction Time”  
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101. “ARMOR: Association Rule Mining based on ORacle”  
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102. “On Database Support for Multilingual Environments”  
 A. Kumaran and J. Haritsa  
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103. “Building Classifiers With Unrepresentative Training Instances: Experiences From The KDD Cup 2001 Competition”,  
 A. Bhamidipaty, A. Janakiraman, S. Sarawagi and J. Haritsa  
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104. "MIRROR: A State-Conscious Concurrency Control Protocol for Replicated Real-Time Databases" (extended version)  
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106. "A Database System for Interconnect Parasitics"  
 N. S. Arun, M. Krishna and J. Haritsa  
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107. "Secure Real-Time Database Systems"  
 B. George and J. Haritsa  
*Proc. of Natl. Conf. on Software for Real-Time Systems, Cochin, India, January 1996, pgs. 183–191*

108. "Commit Processing in Distributed Real-Time Database Systems"  
 R. Gupta and J. Haritsa  
*Proc. of Natl. Conf. on Software for Real-Time Systems, Cochin, India, January 1996, pgs. 195–204*

109. "REVI: A Recreatable Text Editor"  
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110. "Efficient Fair Disk Schedulers"  
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111. "Database Compression: A Performance Enhancement Tool"  
 G. Ray, J. Haritsa and S. Seshadri  
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112. "OSHADHI: A Biodiversity Information System"  
 R. Vidya and J. Haritsa  
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113. "Fair Disk Schedulers for High Performance Computing Systems"  
 J. Haritsa and T. Pradhan  
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eds. S. Sahni, V. Prasanna and V. Bhatkar, pgs. 136–141

114. “ICON: A System for Implementing Constraints in Object-based Networks”  
S. Goli, J. Haritsa and N. Roussopoulos  
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115. “Disk Scheduling for Multimedia Database Applications”  
J. Haritsa and M. B. Karthikeyan  
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116. “Design Issues for Extensible Concurrency Control Mechanisms”  
S. Seshadri, S. Thomas and J. Haritsa  
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117. “Design of the MANDATE MIB”  
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J. Haritsa, M. Carey and M. Livny  
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## INVITED PAPERS

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120. “PLAN DIAGRAMS: Visualizing Database Query Optimizers”  
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121. “The KNDN Problem: A Quest for Unity in Diversity ”  
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123. “Negative Databases ”  
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124. “A Holistic XML-to-RDBMS Mapper (Demonstration)”  
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*TR-2016-02, DSL/CDS*

130. “Securely Processing Range Predicates on Honest-but-Intrusive Cloud Servers”  
 M. Kesarwani, A. Kaul, G. Singh, P. Deshpande and J. Haritsa  
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131. “RDBMS Operators for Ranking of Keyword Search Results”  
 Vinay M. S. and J. Haritsa  
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132. “Platform-independent Robust Query Processing”  
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133. “On Improving Write Performance in PCM Databases”  
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*TR-2015-01, DSL/SERC*

134. “Query Processing without Estimation”  
 A. Dutt and J. Haritsa  
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135. “Targeted Association Rule Mining in Data Cubes”  
 S. Harsola, P. Deshpande and J. Haritsa  
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136. “Engineering Dataless Databases”  
R. Trivedi, I. Nilavalagan and J. Haritsa  
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137. “Characterizing Peak Power Behavior of Database Engines”  
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138. “Stability-conscious Query Optimization”  
M. Abhirama, S. Bhaumik, A. Dey, H. Shrimal and J. Haritsa  
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139. “Efficient Generation of Approximate Plan Diagrams”  
A. Dey, S. Bhaumik, Harish D. and J. Haritsa  
*TR-2008-01, DSL/SERC*
140. “Robust Plans through Plan Diagram Reduction”  
Harish D., P. Darera and J. Haritsa  
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141. “Reduction of Query Optimizer Plan Diagrams”  
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142. “Scalable Optimization of Complex SQL Queries”  
G. Das and J. Haritsa  
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143. “Holistic Schema Mappings for XML-on-RDBMS”  
P. Patil and J. Haritsa  
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144. “On Pushing Multilingual Query Operators inside Relational Engines”  
A. Kumaran, P. Chowdary and J. Haritsa  
*TR-2005-01, DSL/SERC*
145. “IMAX: Incremental maintenance of schema-based XML statistics”  
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*TR-2004-05, DSL/SERC*
146. “Search-Optimized Persistent Suffix Tree Storage for Biological Applications”  
S. Bedathur and J. Haritsa  
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147. “Multilingual Semantic Matching Operator in SQL”  
A. Kumaran and J. Haritsa  
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148. “A Framework for High-Accuracy Privacy-Preserving Mining”  
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149. “Supporting Multi-lexical Matching in Database Systems”  
A. Kumaran and J. Haritsa  
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150. “A Horizontally-Compacted Trie Index for Strings”  
N. Neelapala, R. Mittal and J. Haritsa  
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A. Jain, P. Sarda and J. Haritsa  
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153. "Supporting Exploratory Queries in Databases"  
A. Kadlag, A. Wanjari, J. Freire and J. Haritsa  
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M. Ramanath, J. Freire, J. Haritsa and P. Roy  
*TR-2003-01, DSL/SERC*
155. "On Incorporating Iceberg Queries in Query Processors"  
L. Krishna, P. Tolani and J. Haritsa  
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L. Krishna and J. Haritsa  
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157. "XGRIND: A Query-friendly XML Compressor"  
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B. Srikanta, J. Haritsa and U. Sen  
*TR-2001-02, DSL/SERC*
159. "On the Optimality of Association-rule Mining Algorithms"  
V. Pudi and J. Haritsa  
*TR-2001-01, DSL/SERC*
160. "Adding PEP to Real-Time Distributed Commit Processing"  
J. Haritsa and K. Ramamritham  
*TR-2000-03, DSL/SERC*
161. "Turbo-charging Vertical Mining of Large Databases"  
P. Shenoy, J. Haritsa, S. Sudarshan, G. Bhalotia, M. Bawa and D. Shah  
*TR-2000-02, DSL/SERC*
162. "Quantifying the Utility of the Past in Mining Large Databases"  
V. Pudi and J. Haritsa  
*TR-2000-01, DSL/SERC*
163. "Distributed Query Processing on the Web"  
N. Gupta, J. Haritsa and M. Ramanath  
*TR-1999-01, DSL/SERC*
164. "More Optimism about Real-Time Distributed Commit Processing"  
R. Gupta, J. Haritsa and K. Ramamritham  
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165. "Robust Real-Time Index Concurrency Control"  
S. R. Narayanan, B. Goyal, J. Haritsa and S. Seshadri  
*TR-1997-03, DSL/SERC*

166. "Secure Processing in Real-Time Database Systems"  
B. George and J. Haritsa  
*TR-1997-02, DSL/SERC*
167. "Revisiting Commit Processing in Distributed Database Systems"  
R. Gupta, J. Haritsa and K. Ramamritham  
*TR-1997-01, DSL/SERC*
168. "Security Costs in Real-Time Database Systems"  
B. George and J. Haritsa  
*TR-1996-02, DSL/SERC*
169. "Commit Processing in Distributed Real-Time Database Systems"  
R. Gupta, J. Haritsa, K. Ramamritham and S. Seshadri  
*TR-1996-01, DSL/SERC*

## PROJECT REPORTS

170. "Database Engine for Sequences"  
J. Haritsa  
*PR-2008-01, DSL/SERC*
171. "Design and Implementation of a Bio-diversity Database Management System"  
J. Haritsa, M. Gadgil and V. Nanjundiah  
*PR-2001-01, DSL/SERC*
172. "MINTO: A Software Tool for Mining Manufacturing Databases"  
J. Haritsa  
*PR-1999-01, DSL/SERC*
173. "Design and Analysis of Data Mining Algorithms"  
J. Haritsa  
*PR-1998-01, DSL/SERC*
174. "DIAS: An Object-Oriented Database for Interconnect Analysis"  
J. Haritsa  
*PR-1997-02, DSL/SERC*
175. "MIDAS: A Database Design for Flexible Manufacturing Systems"  
J. Haritsa and V. Rajaraman  
*PR-1997-01, DSL/SERC*

## PATENTS and COPYRIGHTS

- US Patent pending: "*Method and Apparatus for Improved Call Handling and Service Based On Caller's Demographic Information*", Provisional Application No. 60/205,038 filed May 18, 2000; Published Application No. 20020046030 on April 18, 2002.
- Copyright Ownership received for "*Picasso Database Query Optimizer Visualizer*" software from Copyright Office, Govt. of India, issued on May 1, 2006 [Registration No. SW-2016/2006].  
This software has been licensed to major international database vendors and academic institutions.

- Copyright Ownership received for “*CODD Metadata Processor*” software from Copyright Office, Govt. of India, issued on September 10, 2013 [Registration No. SW-7063/2013]. This software has also been licensed to major international database companies and premier educational institutions. This software has been licensed to major international database vendors and academic institutions.

### **Section C: MAJOR SPONSORED PROJECTS**

No.	Title	Sponsor	Role	Amount (in lakhs)	Duration (in years)	Status
1	Database Design Audit	Oriental Insurance	PI	10	1 (2013)	Completed
2	Tightly Coupling Keyword Query Interfaces with Structured Database Repositories	DST	PI	41.7	3 (11/2010-10/2013)	Completed
3	Database Engine Design	xTreme Data	PI	4.6	1 (10/2005-09/2006)	Completed
4	Database Engines for Sequences	DST	PI	52.2	5 (1/2003-12/2007)	Completed
5	Computational Genomics, Genomics Initiative at IISc	DBT	Co-PI	163.9	5 (6/2002-5/2007)	Completed
6	RDBMS Internals	HP ISO	PI	3.0	8 days (2003)	Completed
7	Design and Implementation of a Bio-diversity DBMS	DBT	PI	9.7	3 (9/98-3/01)	Completed
8	Design and Analysis of Data Mining Algorithms	Hitachi	PI	3.1	0.5 (12/97-5/98)	Completed
9	Minto: A Software Tool for Mining Manufacturing Databases	DST	PI	11.3	2 (01/97-03/99)	Completed
10	A Distributed Object-Oriented Simulation Testbed for Manufacturing Systems	DST	Co-PI	5.0	2 (12/94-11/96)	Completed
11	DIAS: An Object-Oriented Database for Interconnect Analysis	TI India	PI	2.7	1.5 (07/95-12/96)	Completed
12	MIDAS: A Database Design for Flexible Manufacturing Systems	DST	PI	9.1	2 (02/95-01/97)	Completed

## **Section D: STUDENT THESES**

### **Doctor of Philosophy (PhD)**

1. “Database Engine Design for Robust Query Processing”  
*Srinivas Karthik (in progress)*
2. “Plan Bouquets: An Exploratory Approach to Robust Query Processing”  
*Anshuman Dutt (August 2016)*
3. “Caching Techniques for Dynamic Web Servers”  
*Suresha (June 2007)*
4. “BODHI: A Database Engine for Biological Applications”  
*B. J. Srikanta (April 2006)*
5. “Schema-based Statistics and Storage for XML”  
*M. Ramanath (April 2006)*
6. “Multilingual Information Processing on Relational Database Architectures”  
*A. Kumaran (December 2005) [received IISc Best Thesis award]*
7. “Efficient Discovery of Concise Association Rules from Large Databases”  
*Vikram Pudi (April 2003) [received IISc Best Thesis award]*
8. “Secure Real-Time Transaction Processing”  
*Binto George (December 1998) [nominated for IISc Best Thesis award]*

### **Master of Science (Engineering) (MSc(Engg))**

1. “Balancing Money and Time for OLAP Queries on Cloud Databases”  
*Rafia Sabih (November 2016)*
2. “Towards Designing PCM-Conscious Database Systems”  
*Vishesh Garg (March 2016)*
3. “Exploring the Semantics of Plan Diagrams”  
*Brughathi H S (February 2012)*
4. “Optimizing Suffix Tree Layouts”  
*Rajul Bhavsar (August 2011)*
5. “Efficiently Approximating Query Optimizer Diagrams”  
*Atreyee Dey (August 2009)*
6. “Reduction of Query Optimizer Plan Diagrams”  
*Pooja Darera (December 2007) [received Best Thesis award]*
7. “On Holistic Source-Centric Mappings for XML-on-RDBMS”  
*Priti Patil (September 2005)*
8. “Distributed Web Query Processing Systems”  
*Maya Ramanath (March 2000)*
9. “Commit Processing in Distributed Real-Time DBMS”  
*Ramesh Kumar Gupta (July 1997) [nominated for IISc Best Thesis award]*
10. “Design and Implementation of An OODBMS for VLSI Interconnect Parasitic Analysis”  
*N. S. Arun (July 1996) [nominated for IISc Best Thesis award]*

### **Master of Engineering (ME)**

1. “Performance Testing for Database Systems”  
*Anupam Sanghi* (July 2016)
2. “Robust Query Processing”  
*Kuntal Ghosh* (July 2016)
3. “Executing Database Query on Modern CPU-GPU Heterogeneous Architecture”  
*Rahul Hasija* (July 2016)
4. “Predicting Query Execution Time using Statistical Techniques”  
*Vamshi Pasunuru* (July 2016)
5. “Design and Implementation of CODD 1.0”  
*Ashoke S* (July 2015)
6. “Producing on-the-fly anorexic plan diagrams using AniPQO”  
*Chetas Mahajan* (July 2015)
7. “Improving Worst-case Bounds for Plan Bouquet-based Techniques”  
*Lohit Krishnan* (July 2015)
8. “Securely Processing Range Predicates on Cloud Databases”  
*Manish Kesarwani* (July 2015)
9. “Improving PostgreSQL Cost Model”  
*Pankhuri* (July 2015)
10. “Turbo-charging Plan Bouquet Identification”  
*Rajmohan C* (July 2015)
11. “Sampling for Top-K Frequent Itemsets Mining”  
*Santosh Ravi Kiran* (July 2014)
12. “Design and Implementation Techniques for Plan Bouquet”  
*Sumit Neelam* (July 2014)
13. “Design and Analysis of OCPA Secure Encrypted Databases”  
*Gagandeep Singh* (July 2014)
14. “Big Data Testing Environments”  
*Ankur Gupta* (July 2014)
15. “Algorithms for PCM-Database Operators”  
*Abhimanyu Singh* (July 2013)
16. “Query Processing in Encrypted Cloud Databases”  
*Akshar Kaul* (July 2013)
17. “Analyzing the Behavior of a Distributed Database Query Optimizer”  
*Deepali Nemade* (July 2013)
18. “Hosting Keyword Search Engine on RDBMS”  
*Karthik Somayaji* (June 2012)
19. “Design and Implementation of Picasso 3.0”  
*Santosh Sahu* (June 2012)
20. “Generating, Classifying and Indexing Large Scale Fingerprints” *Jadhav Sachin Namdeo* (June 2012)
21. “CODD Metadata Processor”  
*I Nilavalagan* (June 2012)

22. “Targeted Association Rule Mining in Data Cubes”  
*Shrutendra K Harsola* (June 2012)
23. “Peak Power Modeling in Database Engines”  
*Puneet Kumar Birwa* (July 2011)
24. “On the Generation of Top-K Query Execution Plans”  
*Hiranya Sonowal* (July 2011)
25. “Generation and Storage of Large Synthetic Fingerprint Database”  
*Afzalul Haque Ansari* (July 2011)
26. “Large-scale Fingerprint Identification Systems”  
*Kushal Wadhwanı* (July 2011)
27. “Efficient and Robust Generation of Plans in Top-down Optimizers”  
*Rahul Pandit* (July 2011)
28. “VISTA: A View of Effective Sampling for Frequent Itemset Mining”  
*Mudireddy Jagadesh Babu* (July 2011)
29. “On Efficient Identification of Robust Plans and Efficient Production of Plan Diagrams”  
*Anshuman Dutt* (July 2010)
30. “Exploring Opportunities of Power Savings in Database Query Optimizers”  
*Mayuresh Kunjir* (July 2010)
31. “Characterizing Power Performance of Database Query Optimizers”  
*Mahesh Bale* (July 2010)
32. “Optimizing MDX queries”  
*Aditya Mantramarthy* (July 2010)
33. “On the Stability of Plan Costs and the Costs of Plan Stability”  
*M. Abhirama* (August 2009)
34. “Design and Implementation of Picasso 2.0 and A Glimpse of the Future Version”  
*Ravi Shetye* (July 2009)
35. “Characterizing Plan Diagram Reduction Quality and Efficiency”  
*Harsh Shrimal* (June 2009)
36. “Efficient Generation of Query Optimizer Plan Diagrams”  
*Sourjya Bhaumik* (June 2009)
37. “SIGHT and SEER: Efficient Production and Reduction of Query Optimizer Plan Diagrams”  
*Harish D* (July 2008)
38. “Dataless Modelling of Large Databases”  
*Gourav Kumar Sakargayan* (July 2008)
39. “On the Stability of Plan Costs and the Costs of Plan Stability”  
*Abhijit Pai* (July 2008)
40. “Analyzing Cache Consciousness of Main Memory Suffix Trees”  
*Shivashankar J* (July 2008)
41. “Integrating Multi-lingual Database Operators on PostgreSQL”  
*Rupesh Bajaj* (July 2007)
42. “Picasso 1.0: Design and Analysis”  
*Tarun Ramsinghani* (July 2007)

43. "Picasso: Design and Implementation of a Database Optimizer Analyzer"  
*Mohammed Aslam* (July 2006)
44. "Picasso: Analyzing and Characterizing Relational Query Optimizers"  
*Akshat Nair* (July 2006)
45. "Robust Heuristics for Scalable Optimization of Complex SQL Queries"  
*Gopal Chandra Das* (July 2006)
46. "A Persistent SEMEQUAL Operator "  
*Prateem Mandal* (July 2006)
47. "Next-Generation Relational Query Optimizers"  
*K. Naveen Reddy* (June 2005)
48. "MLPostgres: Implementing Multilingual Functionalities inside PostgreSQL Database Engine"  
*P. Pavan Kumar Chowdary* (June 2005)
49. "High Performance Algorithms for Privacy-Preserving Mining"  
*Shipra Agrawal* (July 2004)
50. "Performance Analysis of Horizontally Compacted String Indexes"  
*Anoop Jain* (July 2004)
51. "Green Query Optimization: Taming Query Optimization Overheads through Plan Recycling"  
*Sarda Parag Kacharulal* (July 2004)
52. "Implementation of SPINE Genomic Index and Graphical User Interface in BODHI"  
*Abhijit Kadlag* (July 2004)
53. "Fast Access to File-based Data Warehouses"  
*Amol V. Wanjari* (July 2004)
54. "PLASTIC: Reducing Query Optimization Overheads through Plan Recycling"  
*Vibhuti Singh Sengar* (March 2003)
55. "The SPINE Genomic Index"  
*Naresh Neelapala and Romil Mittal* (March 2003)
56. "Design and Implementation of META and Log Record Reduction in GT.M Database"  
*Srikanth B.* (March 2002)
57. "Design and Implementation of Client Interface Framework in BODHI"  
*Bandi Sreekanth Reddy* (March 2002)
58. "Implementation of PDIndex and Query Optimization in BODHI"  
*Nagesh Bhattu Sristy* (March 2002)
59. "Efficiently Evaluating N-Iceberg Queries"  
*Krishna P. Leela* (March 2002)
60. "On Integrating Icberg Queries in the Query Optimizer"  
*Pankaj M. Tolani* (March 2002)
61. "System Integration, Testing and Evaluation of BODHI"  
*Uday Sankar Sen* (January 2001)
62. "Graphical Interfaces for Spatial Data"  
*Amitabh Ghosh* (July 2000)
63. "Query Processing and Optimization in Oshadhi"  
*Satheesh Konidala* (February 2000)

64. "Database Habitats for Biological Species: Handling Taxonomy Data in OSHADHI"  
*T. Rajarao* (February 2000)
65. "The Spatial Perspective of OSHADHI"  
*Madhava Rao Cheethirala* (February 2000)
66. "One-Phase Real-Time Commit Processing"  
*Prabodh Saha* (July 1999)
67. "Design Issues in a Data Warehouse"  
*Anurag Srivastava* (March 1999)
68. "OSHADHI-3 Biodiversity Information System"  
*Manjusha Gedam* (January 1999)
69. "Commit Processing in Distributed Secure Real-Time Transaction Processing Systems"  
*Kavitha Nagaraj* (October 1998)
70. "DISCOVER the Web"  
*Nalin Gupta* (July 1997)
71. "The OSHADHI-2 Biodiversity Database System"  
*B. Chandramouli* (July 1997)
72. "DELTA: A Fast Algorithm for Incremental Mining of Association Rules"  
*Shrividya* (June 1997)
73. "Index Concurrency Control in Firm Real-Time Databases"  
*S. R. Narayanan* (January 1997)
74. "Design and Implementation of the MIDAS-2 Manufacturing Database System"  
*N. Sridevi* (January 1997)
75. "Design and Implementation of MIDAS – A Manufacturing Information DAtabase System"  
*R. Bhuvaneshwari* (June 1996)
76. "Query Processing and Bulk Loading in Object Oriented Database Systems"  
*M. Krishna* (June 1996)
77. "Fair Schedulers for Disk Drives"  
*Tulika Pradhan* (June 1995)
78. "Data Compression in Databases"  
*Gautam Ray* (June 1995)
79. "OSHADHI: A Bio-diversity Information System"  
*R. Vidya* (June 1995)
80. "REVI: A Recreatable Text Editor"  
*R. Sridharan* (January 1995)
81. "Fairness in Disk Scheduling"  
*Raj Kumar* (January 1994)

### **Section E: RESEARCH ACTIVITY INITIATION**

When I joined IISc, research on database systems and real-time systems was non-existent at our center and I therefore had to start from scratch the research activities in these areas. These initial efforts were given a focus after I set up the Database Systems Lab in 1995 to serve as a dedicated facility for database and real-time system research and development – I have been the Convenor of the lab since that time. The lab currently has close to twenty workstations, primarily comprised of high-end Sun Ultra 24 and Ultra 20 platforms; the Illustra, DB2, Oracle, SQL Server, Sybase, PostgreSQL, MySQL, Shore and Exodus database software packages; numerous books, journals, conference proceedings and manuals; discussion, presentation and copier facilities; and is networked, airconditioned, and open round the clock. These facilities have, for the most part, been acquired using funding from projects sponsored by government agencies and multinational companies.

## **Section F: PROFESSIONAL ACTIVITIES**

### **COMMITTEES**

Member, Karnataka Vision group on IT (2016–)

Member, PVLDB Advisory Committee (2015–)

Member, HAG Scale Selection Committee, IIT Madras (2015–)

Member, Special Committee, School of Computer and Systems Sciences, JNU Delhi (2015–)

Member, Best Paper Committee, VLDB 2014 (with D. Papadias and K. L. Tan)

Member, Best Paper Committee, DASFAA 2013 (with W. Meng and D. Agrawal)

Member, Faculty Selection Committee, IIT Ropar (May 2016)

Member, Mathematical Sciences Research Committee, CSIR, Govt. of India, 2011–14

Member, Sectional Committee II (Computer Engineering and Information Technology), INAE, 2013–15

### **EDITOR**

Associate Editor of the International Journal of Real-Time Systems (JRTS), Springer, January 1998 – July 2010

Associate Editor of the IEEE Data Engineering Bulletin (DEB), January 2006 – December 2007

Associate Editor of the Journal of Distributed and Parallel Databases, Springer (JDPD), January 2008 –

Associate Editor of the IEEE Transactions on Knowledge and Data Engineering (TKDE), March 2009 – March 2013

Associate Editor of the Very Large Data Base Journal (VLDBJ), Springer, September 2009 –

Associate Editor of the Journal of Computing, CSI, July 2011 – March 2013

Associate Editor of the Proceedings of VLDB Endowment (PVLDB), VLDB Endowment, April 2012 – March 2013

### **BOARD**

Member, VLDB Endowment Board of Trustees (2014–)

Member, Board of Studies, School of Computer Science, Jawaharlal Nehru University (2015–)

Member, Board of Studies, Computer Science, Goa University (1999–2002)

Member, Board of Studies, International School of Information Management (ISIM), Mysore University (2006–)

Member, Technical Advisory Board, 3iInfotech, Mumbai (2008–2009)

Member, Executive Committee, IEEE Computer Society (Bangalore Chapter), (2010–2012)

### **INVITED TALKS**

1. “Holding the Query Optimizer SpillBound”
  - IIT Madras, December 2, 2016
2. “The Latent Power of Absurd Ideas”

- CoCoNITs, NIT Surathkal, October 14, 2016
- School of Computer Science, JNU Delhi, October 3, 2016
- IIT Madras, August 21, 2015 (Infosys Science Foundation Lecture)
- IIIT Delhi, October 2015 (Infosys Science Foundation Lecture)
- IIT Hyderabad, November 4, 2015 (Infosys Science Foundation Lecture)
- IIT Kharagpur, March 20, 2016
- IIT Mandi, May 18, 2016 (Infosys Science Foundation Lecture)
- Bangalore Science Forum, July 27, 2016

3. “Big Data, Small Testing”
  - Big Data Public Lecture, Bangalore, IISc, May 23, 2014
  - Indo-Japan DST Workshop, January 19, 2016
  - Seminar on Data Analytics and Business Intelligence, CEDABI - Myra School of Business, March 11, 2016
4. “Secure Data Processing on the Cloud”
  - RVCE Bangalore, February 6, 2014
  - Bangalore Science Forum, July 23, 2014
5. “A Case for Database Engine Research”
  - Intl. Conf. on Management of Data (COMAD), Hyderabad, December 19, 2014
6. “Designing Database Engines”
  - Karnataka State Council for Higher Education, Bangalore, September 6, 2011
7. “Query Optimization in DBMS”
  - In-service Training Program for Post Graduate Teachers (Computer Science), Kendriya Vidyalaya IISc, Bangalore, May 11, 2011
8. “Robust Optimization of Database Queries”
  - Indian Academy of Sciences Mid-year Meeting, Bangalore, July 10, 2011
  - IISc-IBM Research Day, Bangalore, March 19, 2011
9. “Drawing Out the Artistic Talents of Database Query Optimizers”
  - Dept. of Computer Science, IIT Mandi, May 18, 2016
  - C R Rao AIMSCS, Univ. of Hyderabad, February 20, 2016.
  - Dept. of Computer Science, BMS Inst. of Technology, Bangalore, August 22, 2012
  - Dept. of Computer Science, IIT Madras, Chennai, April 12, 2012
  - Dept. of Computer Science, Goa University, Goa, November 3, 2011
  - Dept. of Computer Science, MANIT, Bhopal, August 3, 2011
  - IIITM-K, Thiruvananthapuram, February 3, 2011
  - Thiagarajar School of Management, Madurai, September 3, 2010
  - Dept. of Computer Science, IIT Kanpur, April 22, 2010
  - Dept. of Computer Science, IIT Kanpur, April 22, 2010
  - Dept. of Computer Science, Andhra University, Vishakapatnam, January 23, 2010
  - The Data Warehousing Institute, Bangalore, December 19, 2009
  - Bangalore Science Forum, July 23, 2009
  - SAP India Labs, Bangalore, February 27, 2009

- Workshop on Advanced Database Replication Technologies for Netcentric Systems, CAIR, DRDO Bangalore, December 3, 2008
- IISc-IBM Research 3rd Operations Research and Data Analytics Workshop, Bangalore, March 4, 2008
- TCS Performance Engineering Day, Bangalore, October 29, 2007
- Microsoft Research, Bangalore, August 24, 2006

10. “Analyzing Plan Diagrams of Database Query Optimizers”

- Bell Labs India, Bangalore, September 20, 2005
- IBM Global Services, Bangalore, September 20, 2005

11. “Reducing Query Optimization Overheads through Plan Recycling”

- IBM Global Services, Bangalore, April 15, 2004
- IIIT Bangalore, October 17, 2003
- Intl. Symp. on Information Technology: Emerging Trends, IIIT Allahabad, September 19, 2003
- Dept. of Computer Science & Engineering, IIT Madras, April 24, 2003
- IBM India Research Lab, New Delhi, March 28, 2003
- N. Rama Rao Distinguished Lecture, IIT Kanpur, March 27, 2003
- Goa University, October 19, 2002

12. “Privacy-Preserving Data Mining”

- RNSIT Bangalore, April 10, 2014
- Dept. of Computer Science, Andhra University, January 22, 2010
- Research Symposium, PanIIT 2008 Global Conference, IIT Madras, December 20, 2008
- Intl. Conf. on Future of Knowledge Organization in the Networked Environment (IKONE), September 4, 2007
- Rotary Club, Bangalore South, 2006
- Kamala Institute of Science & Technology, Singapur, December 22, 2005
- Bangalore Science Forum, Bangalore, September 28, 2005
- Pune Institute of Engineering and Technology, Pune, October 9, 2004
- 3rd Informatics Endowment Lecture Series on Digital Libraries, U. of Mysore, Mysore, August 27, 2004
- U. of Hyderabad, Hyderabad, July 23, 2004
- SDM College, Dharwad, May 17, 2004
- Don Bosco College, Bangalore, May 8, 2004

13. “MASK: Mining Associations with Secrecy Konstraints”

- SHOWCASE, Dept. of Computer Science & Automation, IISc, September 22, 2002

14. “Turbocharging Vertical Mining in Large Databases”

- N. Rama Rao Distinguished Lecture, IIT Kanpur, February 16, 2001
- Cornell University, Ithaca, U.S.A., July 7, 2000

15. “Multilingual Databases”

- Managing Complexity in a Distributed World (MCDES), IISc Centenary Conference, Bangalore, May 28, 2008

- Annual Convention of Computer Society of India, November 2007
- Convergence 2006, Workshop on New Frontiers in Database Research, Mumbai, March 19, 2006
- Microsoft Academic Summit, Bangalore, April 14, 2004

16. “Mutating Database Engines to be Bio-friendly”

- Workshop on Scientific Discovery through Intensive Data Exploration, ICTS Bangalore, February 10, 2011
- Indian Institute of Science Colloquium, February 27, 2006

17. “SPINE: Putting Backbone into String Indexing”

- Bioinformatics Symposium, Indian Institute of Science, March 1, 2006

18. “Indexing Techniques for Biological Data”

- Workshop on Scientific Discovery through Intensive Data Exploration, ICTS Bangalore, February 11, 2011

19. “Indexing Genomic Sequences”

- Workshop on Data Mining Applications in Bioinformatics, Indian Institute of Science, March 20, 2003

20. “Database Technology and Biologists: Bridging the Digital Divide”

- Monsanto Research Centre, Bangalore, October 10, 2002

21. “Design and Implementation of a Biodiversity System”

- Symposium on Current Trends in Bioinformatics, Indian Institute of Science, March 28, 2001

22. “Database Compression: A Performance Enhancement Tool”

- Goa University, April 30, 1998

23. “Distributed Query and Transaction Processing”

- Goa University, April 29, 1998

24. “Concurrency Control in Database Systems”

- Goa University, April 27, 1998

25. “Commit Processing in Distributed Real-Time Database Systems”

- HP Labs, San Jose, May 28, 1997

26. “Revisiting Commit Processing in Distributed Database Systems”

- Northeastern University, Boston, May 21, 1997
- IBM Watson Research Center, New York, May 22, 1997
- AT&T Bell Labs, Murray Hill, May 23, 1997
- IBM Almaden Research Center, San Jose, May 27, 1997

27. “Secure Transaction Processing in Real-Time Database Systems”

- Hong Kong University of Science and Technology, May 9, 1997
- University of Massachusetts, Amherst, May 19, 1997
- National University of Singapore, May 30, 1997

28. “Approximate Analysis of Real-Time Database Systems”

- Indian Institute of Technology, Bombay, February 4, 1994

29. "Transaction Scheduling in Real-Time Database Systems"
  - University of Florida, Gainesville, U.S.A., June 28, 1993
30. "Database Systems: The Next Generation"
  - SHOWCASE, Dept. of Computer Science & Automation, IISc, September 2001

## INVITED TUTORIALS

1. "Query Optimizer Plan Diagrams: Production, Reduction and Applications"
  - 27th IEEE Intl. Conf. on Data Engineering (ICDE), Hanover, Germany, April 14, 2011
2. "The Strange and Wondrous Ways of Industrial-Strength Database Query Optimizers"
  - 15th Intl. Conf. on Management of Data (COMAD), Mysore, December 11, 2009
3. "Multi-lingual Databases"
  - 11th Intl. Conf. on Database Systems for Advanced Applications (DASFAA), Singapore, April 12, 2006
  - 13th Intl. Conf. on Management of Data (COMAD), New Delhi, December 14, 2006
4. "XML Databases"
  - VLDB Summer School, New Delhi, June 2, 2004
  - VLDB Summer School, Bangalore, June 9, 2004
5. "Real-time Database Systems"
  - Workshop of the Indian Database Research Community, Pune, May 12, 1999
6. "Relational Query Languages"
  - CDAC Workshop on Relational Database Technology, Bangalore, April 28, 1994
7. "An Introduction to Relational Database Management Systems"
  - CDAC Workshop on Relational Database Technology, Bangalore, April 28, 1994
8. "An Overview of Real-Time Systems"
  - Aeronautical Development Establishment, Bangalore, April 6/7, 1993
  - Aeronautical Development Establishment, Bangalore, September 23/25, 1993

## CHAIR

Program Committee Co-Chair, 42nd Intl. Conf. on Very Large Data Bases, VLDB 2016, New Delhi, India

Program Committee Vice-Chair, ACM Intl. Conf. on Management of Data, SIGMOD 2013, New York, USA

General Chair, 17th Intl. Conf. on Management of Data, COMAD 2011, Bangalore, India

Program Committee Co-Chair, 26th Intl. Conf. on Data Engineering, ICDE 2010, Los Angeles, USA

Tutorials Co-Chair, 19th Intl. World Wide Web Conf., WWW 2010, Raleigh, USA

Demonstrations Track Co-Chair, 35th Intl. Conf. on Very Large Data Bases, VLDB 2009, Lyon, France

Program Committee Co-Chair, 13th Intl. Conf. on Database Systems for Advanced Applications, DASFAA-2008, March 2008, New Delhi, India

Program Committee Vice-Chair, IEEE Intl. Conf. on Data Mining, ICDM 2007, October 2007, Omaha, Nebraska, USA

Program Committee Chair, 11th Intl. Conf. on Management of Data, COMAD-2005, January 2005, Goa, India

Program Committee Vice-Chair (Database Applications & Experiences Track), 21st IEEE Intl. Conf. on Data Engineering, ICDE 2005, April 2005, Tokyo, Japan

Program Committee Co-Chair, Workshop on Bioinformatics, March, 2003, Bangalore, India

Tutorials Chair, 12th Intl. Conf. on Management of Data, COMAD-2005b, December 2005, Hyderabad, India

Tutorials Chair, 10th Intl. Conf. on Database Systems for Advanced Applications, DASFAA-2005, April 2005, Beijing, China

Local Arrangements Chair, 19th Intl. Conf. on Data Engineering, ICDE-2003, March 2003, Bangalore, India

## SESSION CHAIR

Novel Hardware Architectures 2 session, 41st Intl. Conf. on Very Large Data Bases (VLDB), Hawaii, USA, August 2015

Query Processing session, 40th Intl. Conf. on Very Large Data Bases (VLDB), Hangzhou, China, September 2014

Query Processing session, 34th Intl. Conf. on Very Large Data Bases (VLDB), Auckland, New Zealand, August 2008

Query Processing Engines session, 33rd Intl. Conf. on Very Large Data Bases (VLDB), Vienna, Austria, September 2007

Query Optimization session, 31st Intl. Conf. on Very Large Data Bases (VLDB), Trondheim, Norway, August 2005

Data Integration session, 21st Intl. Conf. on Data Engineering (ICDE), Tokyo, Japan, April 2005

Compression and Indexing session, 30th Intl. Conf. on Very Large Data Bases (VLDB), Toronto, Canada, September 2004

Data Mining session, Intl. Conf. on Very Large Data Bases (VLDB), Berlin, Germany, 2003

Poster session, 19th Intl. Conf. on Data Engineering, ICDE-2003, March 2003, Bangalore, India

Data Integrity and Security session, Intl. Conf. on Very Large Data Bases (VLDB), Bombay, India, 1996

Transactions session, Workshop of the Indian Database Research Community, 1999

## PROGRAM COMMITTEE

Intl. Conf. on Extending Database Technology (EDBT) [Industrial]: 2012

Intl. Workshop on Business Intelligence for the Real Time Enterprise (BIRTE): 2008

Intl. Workshop on Testing Database Systems (DBTEST): 2008

ACM Intl. Conference on Information and Knowledge Management (CIKM): 2008

ACM SIGMOD Intl. Conf. on Management of Data (SIGMOD): 2004, 2007

Intl. Conf. on Very Large Data Bases (VLDB): 1996, 1997, 2002, 2003, 2004, 2005, 2006, 2007, 2010

Intl. Conf. on Extending Database Technology (EDBT): 2006

IEEE Intl. Conf. on Data Engineering (ICDE): 1996, 2008

Intl. World Wide Web Conf. (WWW): 2004

Intl. Workshop on the Web and Databases (WebDB): 2003

ACM SIGKDD Workshop on Data Mining in Bioinformatics (BIOKDD): 2004, 2005

Pacific Asia Conf. on Knowledge Discovery and Data Mining (PAKDD): 2001, 2002, 2003

Intl. Workshop on Research Issues in Data Engineering (RIDE): 2003

IEEE Real-Time Technology and Applications Symposium (RTAS): 2001

Intl. Conf. on Database Systems for Advanced Applications (DASFAA): 2001

Intl. Conf. on Parallel and Distributed Information Systems (PDIS): 1996

Intl. Workshop on Databases in Networked Information Systems (DNIS): 2000

Intl. Conf. on Management of Data (COMAD): 1994, 1995, 2000, 2008

IEEE Real-Time Systems Symposium (RTSS): 1994

## REVIEWER

ACM Transactions on Computer Systems

ACM Transactions on Database Systems

IEEE Transactions on Systems, Man and Cybernetics

IEEE Transactions on Knowledge and Data Engineering

IEEE Transactions on Parallel and Distributed Systems

IEEE Transactions on Software Engineering

IEEE Transactions on Computers

IEEE Computer

International Journal on Very Large Data Bases

International Journal of Real-Time Systems

Journal of Information Systems

CSI Journal of Computer Science and Informatics

ACM SIGMETRICS Conference

ACM SIGMOD Conference

IEEE Intl. Conf. on Data Engineering

IEEE Conf. on Distributed Computing Systems

IEEE Intl. Symp. on Network Management

Intl. Conf. on Very Large Data Bases

Conf. on Foundations of Software Theory and Theoretical Computer Science

## **ASSOCIATIONS**

ACM (Fellow), ACM SIGMOD, ACM SIGMETRICS

IEEE (Fellow), IEEE Computer Society

Computer Society of India (Life Member)

## **Section G: AWARDS and HONORS**

### **Awards**

- JC Bose National Fellow, DST, Govt. of India, 2015.
- Fellow, Association of Computing Machinery (ACM), USA, 2015.
- Fellow, Institute of Electrical and Electronics Engineers (IEEE), USA, 2013.
- Fellow, Indian Academy of Sciences (IASc), 2010.
- Fellow, Indian National Academy of Engineering (INAE), 2009.
- Fellow, The National Academy of Sciences, India (NASI), 2007.
- IISc Alumni Award for Excellence in Research for Engineering, 2015.
- Distinguished Alumnus Award, Indian Institute of Technology – Madras, 2012.
- Infosys Prize (Engineering and Computer Science), Infosys Science Foundation, 2014.
- ACCS-CDAC Foundation Award, Advanced Computing and Communication Society, 2013.
- Shanti Swarup Bhatnagar Prize (Engineering Sciences), CSIR, Govt. of India, 2009.
- Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Award (Informatics), 2007.
- Sir C. V. Raman Young Scientist Award, Govt. of Karnataka, 2001.
- Swarnajayanti Fellowship (Engineering Sciences), DST, Govt. of India, 2001-02.
- Featured in five most-cited papers in Springer's International Journal of Real-time Systems since inception in 1989.
- Unrestricted financial grants in excess of USD 250000 from major multinational software companies.

### **Named Talks and Keynotes**

- Keynote Address, "Plan Bouquets: A Fragrant Approach to Robust Query Processing", ACM Compute Conference, Ghaziabad, October 2015.
- Keynote Address, "Plan Bouquets: A Fragrant Approach to Robust Query Processing", CMG India Conference, Pune, December 2014.
- Keynote Address, "Drawing Out the Artistic Talents of Database Query Optimizers", 8th International Multi-conference on Information Processing, Bangalore, July 2014.
- Keynote Address, "Big Data (Size does Matter)", Parasparam 2011, HP Global Soft, October 2011.
- Keynote Address, "Drawing Out the Artistic Talents of Database Query Optimizers", 26th Brazilian Symposium on Databases (SBBD), Florianopolis, Brazil, October 2011.
- Keynote Address, "Drawing Out the Artistic Talents of Database Query Optimizers", 12th Intl. Conf. on Management of Data (COMAD 2005b), Hyderabad, December 2005.
- Ramanujan Distinguished Lecture Series, "Drawing Out the Artistic Talents of Database Query Optimizers", C R Rao AIMSCS Univ. of Hyderabad, February 2016.

- 3rd Informatics Endowment Lecture Series on Digital Libraries, “Privacy-Preserving Data Mining”, Univ. of Mysore, August 2004.
- N. Rama Rao Distinguished Lecture, “Reducing Query Optimization Overheads through Plan Recycling”, Dept. of Computer Science and Engineering, IIT Kanpur, April 2003.
- N. Rama Rao Distinguished Lecture, “Turbocharging Vertical Mining of Large Databases”, Dept. of Computer Science and Engineering, IIT Kanpur, February 2001.

### Best Paper

- Co-author of demo paper chosen for Best Software Demonstration award in 40th Intl. Conf. on Very Large Data Bases (VLDB), September 2014.
- Author of demo paper chosen for Best Software Demonstration award in 36th Intl. Conf. on Very Large Data Bases (VLDB), September 2010.
- Co-author of research paper chosen for Best Paper award in Intl. Conf. on Management of Data (COMAD), December 2000.
- Co-author of research paper chosen in the Best Paper Category at the Intl. Conf. on Very Large Data Bases (VLDB), USA, August 1998.
- Co-author of four papers chosen in the “Selected Papers from Intl. Conf. on Management of Data (COMAD): 1989-98” list.

### Others

- MSc(Engg) student, Pooja Darera, Subramaniam Rajalakshmi Ammal Medal for the Best MSc(Engg) Thesis of SERC, Indian Institute of Science, for the year 2008-09.
- Early promotion from Associate to Full Professor, September 2004.
- PhD student, A. Kumaran, Sir Vithal N Chandavarkar Medal for the Best PhD Thesis in the Faculty of Engineering of the Indian Institute of Science, for the year 2006-07.
- Early promotion from Associate to Full Professor, September 2004.
- PhD student, Vikram Pudi, awarded Prof B G Raghavendra Memorial Medal for the Best PhD Thesis (in the area of operations research and allied areas) of Indian Institute of Science, for the year 2003-04.
- Third place (from 200 contestants) in the Fifth ACM Knowledge Discovery & Data Mining (KDD) Cup international competition, August 2001.
- Guest Editor, Special Issue on Privacy and Trust Management in Cloud and Distributed Systems, IEEE Trans. on Information Forensics and Security (TIFS), vol. 8, no. 6, June 2013.
- Guest Editor, Special Issue on Real-time Database Systems, Intl. Journal of Real-time Systems, vol. 19, no. 3, November 2000.
- Senior Member, IEEE, 2000.
- Highest ratings from Dept. of Science and Technology for MIDAS project, 1997, and MINTO project, 1999.

**END OF RESUME**