

Venkatesh Raman

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Research Interests

Parameterized Complexity, Exact Exponential Algorithms, Data Structures, Sorting, Selection and Searching, Approximation and Randomized Algorithms

Work Experience

Aug 1991 - Present Faculty at the
The Institute of Mathematical Sciences, Chennai.
Currently Professor H (equivalent to a senior professor)

Mar 1991 - Jul 1991 *Post-Doctoral Fellow* at
The Department of Computer Science, University of Waterloo, Canada.

Education

- Ph. D. in Computer Science, University of Waterloo, Waterloo, Ontario, Canada. (February 1991) Advisor: Professor Ian Munro
- M. Math. in Combinatorics and Optimization, University of Waterloo, Canada. (August 1986.)
- M. Sc. in Mathematics, I.I.T. Kanpur, Kanpur, India 208016 (May 1984).

Edited Proceedings/Journal Issues

1. Proceedings of the 34th International Conference on Foundation of Software Technology and Theoretical Computer Science, FSTTCS 2014, December 15-17, 2014, New Delhi, India. LIPIcs 29, Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik 2014, ISBN 978-3-939897-77-4 (with S. P. Suresh).
2. Space Efficient Data Structures, Streams and Algorithms, papers in honor of J. Ian Munro, springer verlag LNCS 8066 (with Andrej Brodnik, Alejandro Lopez-Ortiz and Alfredo Viola), August 2013.
3. Special Issue on Parameterized and Exact Computation, Algorithmica 64(1) 2012, Algorithmica 65(4) 2013 (with Saket Saurabh)
4. Proceedings of the 5th International Symposium on Parameterized and Exact Computation, Springer Verlag LNCS **6478** December 2010 (with Saket Saurabh).
5. Proceedings of the 19th International Conference on FST & TCS, Springer Verlag, LNCS **1738** (December 1999) (with C. Pandu Rangan and R. Ramanujam).

Selected Refereed Journal Publications (Full list can be obtained from DBLP)

1. Varunkumar Jayapaul, Seungbum Jo, Rajeev Raman, Venkatesh Raman, Srinivasa Rao Satti: Space efficient data structures for nearest larger neighbor. *J. Discrete Algorithms* 36: 63-75 (2016)
2. Timothy M. Chan, J. Ian Munro, Venkatesh Raman: Finding median in read-only memory on integer input. *Theor. Comput. Sci.* 583: 51-56 (2015)
3. Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, Saket Saurabh: The Kernelization Complexity of Connected Domination in Graphs with (no) Small Cycles. *Algorithmica* 68(2): 504-530 (2014)
4. Robert Crowston, Gregory Gutin, Mark Jones, Venkatesh Raman, Saket Saurabh, Anders Yeo: Fixed-Parameter Tractability of Satisfying Beyond the Number of Variables. *Algorithmica* 68(3): 739-757 (2014)
5. Daniel Lokshтанov, N. S. Narayanaswamy, Venkatesh Raman, M. S. Ramanujan, Saket Saurabh: Faster Parameterized Algorithms Using Linear Programming. *ACM Trans. Algorithms* 11(2): 15:1-15:31 (2014)
6. Moshe Lewenstein, J. Ian Munro, Venkatesh Raman, Sharma V. Thankachan: Less space: Indexing for queries with wildcards. *Theor. Comput. Sci.* 557: 120-127 (2014)
7. Stefan Kratsch, Marcin Pilipczuk, Ashutosh Rai, Venkatesh Raman: Kernel Lower Bounds using Co-Nondeterminism: Finding Induced Hereditary Subgraphs. *TOCT* 7(1): 4:1-4:18 (2014)
8. Lower bounds for Kernelization (with N. Misra and S. Saurabh) *Discrete Optimization* 8 (1):110-128 (2011).
9. Subexponential Algorithms for Partial Cover Problems (with F. Fomin, D. Lokshтанov and S. Saurabh), *Information Processing Letters* 111 (16): 814-818 (2011). preliminary version in Proceedings of FSTTCS 2009.
10. On the Directed degree-preserving spanning tree problem, (with D. Lokshтанov, S. Saurabh and S.Sikdar) *Discrete Optimization* 8(1): 97-109 (2011). preliminary version in the Proceedings of IWPEC 2009.
11. Neeldhara Misra, N. S. Narayanaswamy, Venkatesh Raman, Bal Sri Shankar: Solving min ones 2-sat as fast as vertex cover. *Theor. Comput. Sci.* 506: 115-121 (2013)
12. Robert Crowston, Gregory Gutin, Mark Jones, Venkatesh Raman, Saket Saurabh: Parameterized complexity of MaxSat Above Average. *Theor. Comput. Sci.* 511: 77-84 (2013)
13. Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, Saket Saurabh, Somnath Sikdar: FPT algorithms for Connected Feedback Vertex Set. *J. Comb. Optim.* 24(2): 131-146 (2012)
14. Fedor V. Fomin, Daniel Lokshтанov, Venkatesh Raman, Saket Saurabh, B. V. Raghavendra Rao: Faster algorithms for finding and counting subgraphs. *J. Comput. Syst. Sci.* 78(3): 698-706 (2012)

15. Sushmita Gupta, Venkatesh Raman, Saket Saurabh: Maximum r -Regular Induced Subgraph Problem: Fast Exponential Algorithms and Combinatorial Bounds. *SIAM J. Discrete Math.* 26(4): 1758-1780 (2012)
16. Geevarghese Philip, Venkatesh Raman, Somnath Sikdar: Polynomial kernels for dominating set in graphs of bounded degeneracy and beyond. *ACM Trans. Algorithms* 9(1): 11 (2012)
17. J. Ian Munro, Rajeev Raman, Venkatesh Raman, S. Srinivasa Rao: Succinct representations of permutations and functions. *Theor. Comput. Sci.* 438: 74-88 (2012)
18. Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, Saket Saurabh: On Parameterized Independent Feedback Vertex Set. *Theor. Comput. Sci.* 461: 65-75 (2012)
19. Pinar Heggernes, Dieter Kratsch, Daniel Lokshtanov, Venkatesh Raman, Saket Saurabh: Fixed-parameter algorithms for Chromatic Number and Disjoint Rectangle Stabbing via iterative localization. *Inf. Comput.* 231: 109-116 (2013)
20. Frederic Dorn, Fedor V. Fomin, Daniel Lokshtanov, Venkatesh Raman, Saket Saurabh: Beyond bidimensionality: Parameterized subexponential algorithms on directed graphs. *Inf. Comput.* 233: 60-70 (2013)
21. Venkatesh Raman, Saket Saurabh, Ondrej Such: An FPT algorithm for Tree Deletion Set. *J. Graph Algorithms Appl.* 17(6): 615-628 (2013)
22. Pranabendu Misra, Venkatesh Raman, M. S. Ramanujan, Saket Saurabh: A Polynomial Kernel for Feedback Arc Set on Bipartite Tournaments. *Theory Comput. Syst.* 53(4): 609-620 (2013)
23. Improved fixed parameter tractable algorithms for two “edge” problems: MAXCUT and MAXDAG. (with Saket Saurabh), *Information Processing Letters* **104(2)** (2007) 65-72.
24. Parameterized complexity of the induced subgraph problem in directed graphs (with Somnath Sikdar), *Information Processing Letters* **104(3)** (2007) 79-85.
25. Efficient Exact Algorithms through Enumerating Maximal Independent Sets and Other Techniques (with Saket Saurabh and Somnath Sikdar), *Theory of Computing Systems* **41(3)** (2007) 563-587 (Preliminary version appeared in the proceedings of ICTCS 2005).
26. Succinct indexable dictionaries with applications to encoding k -ary trees, prefix sums and multisets (with Rajeev Raman and Srinivasa Rao Satti). *ACM Transactions on Algorithms* **3(4)** (2007) Article 43, (Preliminary version appeared in the proceedings of SODA 2002),
27. Succinct ordinal trees with level-ancestor queries (with Richard F. Geary and Rajeev Raman), *ACM Transactions on Algorithms* **2(4)** (2006) 510-534 (Preliminary version appeared in the proceedings of SODA 2004).

28. Faster fixed parameter tractable algorithms for finding feedback vertex sets (with Saket Saurabh and C. R. Subramanian),
ACM Transactions on Algorithms **2(3)** (2006) 403-415 (Preliminary versions appeared in the proceedings of GRACO 2005 and ISAAC 2002).
29. Approximate Block Sorting (with Meena Mahajan, Raghavan Raman and Vijaykumar Sundarrajan),
International Journal of Foundations of Computer Science **17(2)** (2006) 337-356 (Preliminary version appeared in the proceedings of FST & TCS 2003).
30. Parameterized algorithms for feedback set problems and their duals in tournaments (with Saket Saurabh),
Theoretical Computer Science **351(3)** (2006) 446-458 (Preliminary versions appeared in the proceedings of WADS 2003 and IWPEC 2004).
31. A simple optimal representation for balanced parentheses (Richard F. Geary, Naila Rahman and Rajeev Raman),
Theoretical Computer Science **368(3)** (2006) 231-246 (Preliminary version appeared in the proceedings of CPM 2004).
32. Representing Trees of Higher Degree (with David Benoit, Erik D. Demaine, J. Ian Munro, Rajeev Raman, and S. Srinivasa Rao),
Algorithmica **43 (4)** (2005) 275-292.
33. A Tradeoff between Search and Update in Dictionaries (with J. Radhakrishnan), *Information Processing Letters* **80** (5) (2001) 243-247.
34. Parameterized Complexity of Finding Subgraphs with Hereditary Properties (with S. Khot),
Theoretical Computer Science **289** (2002) 997-1008 (Preliminary version in the *Proceedings of the Sixth Annual International Computing and Combinatorics Conference (COCOON 2000)* July 2000, Sydney, Australia.)
35. The Complexity of Irredundant Sets Parameterized By Size (with R. G. Downey and Michael R. Fellows),
Discrete Applied Mathematics **100** (2000) 155-167.
36. Selecting Small Ranks in EREW PRAM (with Sarnath Ramnath),
Information Processing Letters **71** (1999) 183-186.
37. Parameterizing Above the Guarantee: MaxSat and MaxCut (with Meena Mahajan),
Journal of Algorithms **31** (1999) 335-354.
38. Space Efficient Suffix Trees (with Ian Munro and S. Srinivasa Rao),
Journal of Algorithms **39** 205-222 (2001). (Preliminary version in the *Proceedings of the FST & TCS 98 Conference* (1998) Chennai, India, Lecture Notes in Computer Science, Springer Verlag **1530** 186-196).
39. Improved Upper Bounds for Time-Space Tradeoffs for Selection (with S. Ramnath),
Nordic Journal of Computing **6** (1999) 162-180 (Preliminary version appeared in *Proceedings of the Sixth Scandinavian Workshop on Algorithm Theory*, (1998), Stockholm, Sweden, Lecture Notes in Computer Science, Springer Verlag **1432** 131-142.)

40. An Improved Fixed Parameter Algorithm for Vertex Cover (with R. Balasubramanian and Michael R. Fellows),
in *Information Processing Letters* **65** (1998) 163-168.
41. A Simplified NP-complete MAXSAT Problem (with B. Ravikumar and S. Srinivasa Rao),
Information Processing Letters **65** (1998) 1-6.
42. Succinct Representation of Balanced Parentheses, and Static Trees (with J. I. Munro),
SIAM J. Computing **31**(3) 762-776 (2001). (Preliminary version in *Proceedings of the 38th IEEE Symposium on Foundations of Computer Science (FOCS)* (1997) 118-126.)
43. Finding Scores in Tournaments (with R. Balasubramanian and G. Srinivasaraghavan),
in *Journal of Algorithms* **24** (1997) 380-394. (Preliminary versions appeared in WADS93 and LATIN 95 conferences.)
44. Fast Stable In-Place Sorting with $O(n)$ Data Moves (with J. I. Munro),
Algorithmica **16** (2) (1996) 151-160.
45. Selection from Read-Only Memory and Sorting with minimum Data Movement (with J. I. Munro),
Theoretical Computer Science **165** (1996) 311-323.
46. Sorting with Minimum Data Movement (with J. I. Munro), *Journal of Algorithms* **13** (1992) 374-393.
47. Finding The Best Edge-Packing for Two-Terminal Reliability is NP-hard,
Journal of Combinatorial Mathematics and Combinatorial Computing **9**, (1991) 91-96.
48. Stable In Situ Sorting and Minimum Data Movement (with J. I. Munro and J. S. Salowe),
BIT **30**, (1990) 220-234

Selected Refereed Conference Publications (not covered by above)

1. Varunkumar Jayapaul, Venkatesh Raman, Srinivasa Rao Satti: Finding Mode Using Equality Comparisons. WALCOM 2016: 351-360 2015
2. Niranka Banerjee, Sankardeep Chakraborty, Venkatesh Raman, Sasanka Roy, Saket Saurabh: Time-Space Tradeoffs for Dynamic Programming Algorithms in Trees and Bounded Treewidth Graphs. COCOON 2015: 349-360
3. Amer E. Mouawad, Naomi Nishimura, Vinayak Pathak, Venkatesh Raman: Shortest Reconfiguration Paths in the Solution Space of Boolean Formulas. ICALP (1) 2015: 985-996
4. Diptapriyo Majumdar, Venkatesh Raman, Saket Saurabh: Kernels for Structural Parameterizations of Vertex Cover - Case of Small Degree Modulators. IPEC 2015: 331-342
5. Jia Hui (Jimmy) Liang, Vijay Ganesh, Krzysztof Czarnecki, Venkatesh Raman: SAT-based analysis of large real-world feature models is easy. SPLC 2015: 91-100

6. Varunkumar Jayapaul, J. Ian Munro, Venkatesh Raman, Srinivasa Rao Satti: Sorting and Selection with Equality Comparisons. WADS 2015: 434-445
7. Sriganesh Srihari, Venkatesh Raman, Hon Wai Leong, Mark A. Ragan: Evolution and Controllability of CancerNetworks: A Boolean Perspective. IEEE/ACM Trans. Comput. Biology Bioinform. 11(1): 83-94 (2014)
8. Samuel Fiorini, R. Krithika, N. S. Narayanaswamy, Venkatesh Raman: LP Approaches to Improved Approximation for Clique Transversal in Perfect Graphs. ESA 2014: 430-442
9. Moshe Lewenstein, J. Ian Munro, Patrick K. Nicholson, Venkatesh Raman: Improved Explicit Data Structures in the Bitprobe Model. ESA 2014: 630-641
10. Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman: Vertex Cover Reconfiguration and Beyond. ISAAC 2014: 452-463
11. Hicham El-Zein, J. Ian Munro, Venkatesh Raman: Tradeoff Between Label Space and Auxiliary Space for Representation of Equivalence Classes. ISAAC 2014: 543-552
12. Paul S. Bonsma, Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman: The Complexity of Bounded Length Graph Recoloring and CSP Reconfiguration. IPEC 2014: 110-121
13. Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman, Marcin Wrochna: Reconfiguration over Tree Decompositions. IPEC 2014: 246-257
14. Timothy M. Chan, J. Ian Munro, Venkatesh Raman: Selection and Sorting in the "Restore" Model. SODA 2014: 995-1004
15. Parameterized algorithms for even cycle transversal (with P. Misra, M. S. Ramanujan and S. Saurabh) in WG 2012.
16. Paths, Flowers and Vertex Cover (with M. S. Ramanujan and S. Saurabh) in proceedings of ESA 2011: 382-393.
17. Bidimensionality and EPTAS (with D. Lokshtanov, F. Fomin and S. Saurabh) in the proceedings of ACM-SIAM symposium on Discrete Algorithms 2011: 748-759.
18. Fast Local search algorithms for weighted feedback arc set in tournaments, (with F. Fomin, D. Lokshtanov and S. Saurabh) in the proceedings of AAAI 2010.
19. A Quartic kernel for Pathwidth-One Vertex Deletion (with G. Philip and Y. Villanger) in the proceedings of WG 2010 (LNCS 6410): 196-207.
20. Patrick K. Nicholson, Venkatesh Raman, S. Srinivasa Rao: A Survey of Data Structures in the Bitprobe Model. Space-Efficient Data Structures, Streams, and Algorithms 2013: 303-318
21. Parameterized Algorithms for Generalized Domination (with Saket Saurabh, Sriganesh Srihari). in the proceedings of COCOA 2008, St. John's (2008) (Springer Verlag, LNCS 5165) 116-126,

22. The Complexity of Finding Subgraphs Whose Matching Number Equals the Vertex Cover Number (with Sounaka Mishra, Saket Saurabh, Somnath Sikdar and C. R. Subramanian). in the proceedings of ISAAC 2007, Sendai (2007) (Springer Verlag, LNCS **4835**) 268-279.
23. Parameterizing MAX SNP Problems Above Guaranteed Values (with Meena Mahajan and Somnath Sikdar), in the proceedings of IWPEC 2006, Zurich (2006) (Springer Verlag, LNCS **4169**) 38-49.
24. Exact and Parameterized Algorithms through (old and new) Structural Graph theoretical Results (with Saket Saurabh), in the proceedings of the International Conference on Discrete Mathematics, Bangalore (2006) 177-189.
25. Approximation Algorithms for Some Parameterized Counting Problems (with V. Arvind), *Electronic Colloquium on Computational Complexity, ECCC-TR02-031* in the proceedings of ISAAC 2002, Vancouver, Canada August (2002) (Springer Verlag, LNCS **2518**) 453-464.
26. Representing Dynamic Trees Succinctly (with J. I. Munro and A. J. Storm), *Proceedings of the 12th ACM-SIAM Symposium on Discrete Algorithms (SODA)* January (2001) 529-536.
27. Succinct Dynamic Data Structures (with Rajeev Raman and S. Srinivasa Rao), in *Proceedings of the Workshop on Algorithms and Data Structures (WADS 2001)* August 2001, Rhode Island, USA, Lecture Notes in Computer Science, Springer Verlag Springer Verlag LNCS **2125** (2001) 426-437.
28. Explicit Deterministic Constructions for Membership in Bitprobe Model (with J. Radhakrishnan and S. Srinivasa Rao), *Proceedings of the European Symposium on Algorithms (ESA 2001)*, Springer Verlag LNCS **2161** (2001) 290-299.
29. Upper Bounds for MaxSat: Further Improved (with Nikhil Bansal), in *Proceedings of Tenth International Symposium on Algorithms and Computation*, Springer Verlag, LNCS **1741** December 1999, 247-258
30. Distance Competitive Orientation of Graphs (with V. Estivill-Castro), *Proceedings of the Seventh Australian Workshop on Combinatorial Algorithms AWOCA-96* (1996) 39-46.
31. Path Balance Heuristic for Self Adjusting Binary Search Trees (with R. Balasubramanian), *Proceedings of the 15th FST & TCS conference*, Lecture Notes in Computer Science, Springer Verlag **1026** (1995) 338-348
32. Some Hard Problems in (Weighted) Tournaments, *Proceedings of the Fifth National Seminar on Theoretical Computer Science*, Bombay (1995) 115-122.
33. Sorting Multisets and Vectors In-Place (with J.I.Munro), *Proceedings of the 2nd Workshop on Algorithms and Data Structures*, Lecture Notes in Computer Science, Springer Verlag **519** (1991) 473-480.

34. Visibility in Finitely Oriented Polygons (with Vladimir Estivill-Castro), *Proceedings of the Second Canadian Conference in Computational Geometry*, Ottawa, Canada (1990) 181-185.
35. Stable In-Place Quicksort (with J. I. Munro), *Proceedings of the Fifth Annual University at Buffalo Graduate Conference* (1990) 17-22.

Technical Reports, Surveys, Lecture Notes

36. Parameterized Complexity, *Proceedings of the Seventh National Seminar on Theoretical Computer Science*, June (1997) I-1 to I-18.
37. Finding Generalized Hamiltonian Paths in Tournaments, *Proceedings of the Conference on Graph Connections* (Ed R. Balakrishnan, H. M. Mulder and A. Vijaya Kumar) (1999) Allied Publishers, 56-59.

Visits to International Institutes:

1. Visiting Professor, University of Waterloo, Canada during September 2012 to August 2013 (Colloborator: Ian Munro)
2. Visiting Scientist (visit supported by IMPECS), Max Planck Institute for Informatik, Germany during September 3rd to 9th, 2011. (Colloborator: Jiong Guo)
3. Visiting Scientist, Royal Holloway University, UK during July 21st to July 27th, 2011. (Colloborator: Gregory Gutin)
4. Visiting Professor, University of Bergen, Norway during the month of April 2009. (Colloborator: Fedor Fomin, Daniel Lokstanov and Saket Saurabh)
5. Visiting Scientist, Friedrich-Schiller-Universität Jena, Germany during the month of January 2008 (Colloborator: Rolf Niedermeier)
6. Visiting Scientist at School of Computing Science, Simon Fraser University, Canada during May 20-22, 2008 (Colloborator: Pavol Hell).
7. Visiting (Assistant/Associate) Professor, Department of Computer Science, The University of Waterloo, Waterloo, Canada during
 - June-August 1993
 - March 9th to 25th 1995
 - September 21st to 30th 1997.
 - July 1998.
 - May-June 2000
 (Colloborator: Ian Munro).
8. Visiting Scientist, LANIA Research Lab, Mexico, from March 26th to April 3rd, 1995. (Colloborator: Vladimir Estivill-Castro).
9. Visiting Scientist, University of Victoria, Canada during

- April 9-11 1995 and
- October 21-30, 1997

and at Victoria University of Wellington, New Zealand during July 2000 (Colloborator: M. R. Fellows).

10. Visiting Scientist, University of Rhode Island, USA. 1-9 June 1996 (Colloborator: B. Ravikumar).
11. Visiting Scientist, Max Planck Institut for Informatik at Saarbrücken, Germany during the month of March 1998 (Colloborator: Gerth Brodal)

PhD Students Supervised

Geevarghese Philip

Thesis: The kernelization complexity of some covering and domination problems
September 2011

Neeldhara Misra

Thesis: Kernels for F-deletion problem
September 2011

Somnath Sikdar

Thesis: Parameterizing from the Extremes: Feasible parameterizations of some NP-Optimization problems
August 2009

Saket Saurabh

Thesis: Exact algorithms for parameterized and optimization versions of some graph problems
December 2007.

S. Srinivasa Rao,

Thesis: Succinct Data Structures.
December 2001

Master's Students Supervised

S. V. Nagaraj,

Thesis: Optimal Binary Search Trees
(The survey appeared in the journal Theoretical Computer Science in '98)
Completed April 1994.

S. Srinivasa Rao,

Thesis: A Survey of Approximation Algorithms for The Maximum Satisfiability Problem.
Completed April 1997.

G. Srinivasan (Anna University)

Thesis: Self Adjusting Binary Search Trees.

Completed May 1998.

V. Reemus Kumar (Madurai Kamaraj University)
Thesis: Implicit Data Structures for Multikey Search problem and implementing Rank and Select in a Bit vector
Completed May 2002.

R. Ramani (REC Tiruchi)
Thesis: Implementation of Rank and Select and other succinct structures completed in June 2003.
Geevarghese Philip
Thesis: Fixed-parameter algorithms for graph problems using Graph Minor Theory
Completed: April 2008

Neeldhara Misra
Thesis: Infeasibility of Polynomial Kernelization
Completed: April 2009.

Varunkumar Jayapal (Chennai Mathematical Institute)
Thesis: Finding and Maintaining medians under various constraints
Completed July 2013

Abhishek Dang (Chennai Mathematical Institute)
Thesis: Lower bound techniques for dynamic data structures
Completed July 2013.

Courses Taught

Data Structures, Design and Analysis of Algorithms, Discrete Mathematics, Linear Programming, Advanced Data Structures, Approximate Algorithms, Randomized Algorithms and Parallel Algorithms, Parameterized Complexity

Other Professional Activities

- Organized the workshop on ‘advances in data structures’ at IMSc during December 2011.
- Program Committee member of FST & TCS 2014 (Co-Chair), IWOCA 2012, WALCOM 2012, SPIRE 2011, IPEC (formerly IWPEC) 2010 (Co-Chair), TAMC 2009, IWPEC 2006, FST&TCS 1999 (Co-Chair), WADS 2005, TCS 2002, FST&TCS 2002, 1997, 1996.
- Member of IWPEC steering committee from 2006 to 2010.
- Member, DST-DAAD (Indo-German) project on ‘Provably efficient exact algorithms for computationally hard problems’ 2005-2007.
- Member, DST-DAAD (Indo-German) project in ‘Algorithmic and Complexity Issues in Fixed Parameter (In)Tractability’ 1998-2000.

- Principal Investigator, Indo-UK DST project on ‘Highly Efficient Data Structures’ 2000-2002.
- Member of the council of Indian Association for Research in Computing Science (IARCS) 2002-2005.
- Organizing Committee member of the FST & TCS 1998 Conference.