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).

Refereed Journal Publications

1. Samuel Fiorini, R. Krithika, N. S. Narayanaswamy, Venkatesh Raman: Approximability of Clique Transversal in Perfect Graphs, Algorithmica 80 (8) 2221-2239 (2018) (*Preliminary version in ESA 2014: 430-442*).

2. Aritra Banik, Fahad Panolan, Venkatesh Raman, Vibha Sahlot: Frchet Distance Between a Line and Avatar Point Set. Algorithmica 80(9): 2616-2636 (2018) (*Preliminary version in FSTTCS 2017*).

3. Diptapriyo Majumdar, Venkatesh Raman: Structural Parameterizations of Undirected Feedback Vertex Set: FPT Algorithms and Kernelization. Algorithmica 80(9): 2683-2724 (2018). (*Preliminary version in IPEC 2016 and FAW 2017*).

4. Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman, Sebastian Siebertz: Vertex Cover Reconfiguration and Beyond. Algorithms 11(2): 20 (2018) (*Preliminary version in ISAAC 2014*).

5. R. Krithika, Diptapriyo Majumdar, Venkatesh Raman: Revisiting Connected Vertex Cover: FPT Algorithms and Lossy Kernels. Theory of Computing Systems 62(8): 1690-1714 (2018)

6. Niranka Banerjee, Sankardeep Chakraborty, Venkatesh Raman, Srinivasa Rao Satti: Space Efficient Linear Time Algorithms for BFS, DFS and Applications. Theory of Computing Systems 62(8): 1736-1762 (2018) *(Preliminary version in COCOON 2016).*

7. Diptapriyo Majumdar, Venkatesh Raman, Saket Saurabh: Polynomial Kernels for Vertex Cover Parameterized by Small Degree Modulators. Theory of Computing Systems 62(8): 1910-1951 (2018) *(Preliminary version in IPEC 2015).*

8. Timothy M. Chan, J. Ian Munro, Venkatesh Raman: Selection and Sorting in the "Restore" Model. ACM Transaction on Algorithms 14(2): 11:1-11:18 (2018) *(Preliminary version in SODA 2014).*

9. Amer E. Mouawad, Naomi Nishimura, Vinayak Pathak, Venkatesh Raman: Shortest Reconfiguration Paths in the Solution Space of Boolean Formulas, SIAM Journal on Discrete Mathematics 31(3):2185-2200 (2017) (*Preliminary version in ICALP (1) 2015: 985-996*).

10. Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman, Narges Simjour, Akira Suzuki: On the Parameterized Complexity of Reconfiguration Problems. Algorithmica 78(1): 274-297 (2017) (*Preliminary Version in IPEC 2013*).

11. Hicham El-Zein, Moshe Lewenstein, J. Ian Munro, Venkatesh Raman, Timothy M. Chan: On the Succinct Representation of Equivalence Classes. Algorithmica 78(3): 1020-1040 (2017) (*Preliminary versions in ISAAC 2014*)

12. Sankardeep Chakraborty, Venkatesh Raman, Srinivasa Rao Satti: Biconnectivity, st-numbering and other applications of DFS using O(n) bits. J. Comput. Syst. Sci. 90: 63-79 (2017) (*Preliminary version in ISAAC 2016*).

13. Varunkumar Jayapaul, J. Ian Munro, Venkatesh Raman, S. Srinivasa Rao: Finding modes with equality comparisons. Theor. Comput. Sci. 704: 28-41 (2017) (*Preliminary version in WADS 2015 and WALCOM 2016*).

14. 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) (*Preliminary version in IWOCA 2014*).

15. Timothy M. Chan, J. Ian Munro, Venkatesh Raman: Finding median in read-only memory on integer input. Theoretical Computer Sciene 583: 51-56 (2015) (*Preliminary version in ISAAC 2014*)

16. 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) (*Preliminary version in FSTTCS 2010*).

17. Robert Crowston, Gregory Z. 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) (*Preliminary version in SAT 2012*).

18. Daniel Lokshtanov, 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) (*Preliminary version in STACS 2012*).

19. 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).

20. Stefan Kratsch, Marcin Pilipczuk, Ashutosh Rai, Venkatesh Raman: Kernel Lower Bounds using Co-Nondeterminism: Finding Induced Hereditary Subgraphs. Transactions on Computation Theory 7(1): 4:1-4:18 (2014) (*Preliminary version in SWAT 2012*).

21. Moshe Lewenstein, J. Ian Munro, Venkatesh Raman, Sharma V. Thankachan: Less space: Indexing for queries with wildcards. Theoretical Computer Science 557: 120-127 (2014). (*Preliminary version in ISAAC 2014*).

22. Neeldhara Misra, Hannes Moser, Venkatesh Raman, Saket Saurabh, Somnath Sikdar: The Parameterized Complexity of Unique Coverage and Its Variants. Algorithmica 65(3): 517-544 (2013) (*Preliminary version in ISAAC 2007 and CSR 2009*).

23. Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, Saket Saurabh, Somnath Sikdar: FPT algorithms for Connected Feedback Vertex Set. Journal of Combinatorial Optimization 24(2): 131-146 (2012).

24. Neeldhara Misra, Venkatesh Raman and Saket Saurabh: Lower bounds for Kernelization Discrete Optimization **8** (1):110-128 (2011).

25. Sounaka Mishra, Venkatesh Raman, Saket Saurabh, Somnath Sikdar, C. R. Subramanian: The Complexity of König Subgraph Problems and Above-Guarantee Vertex Cover. Algorithmica 61(4): 857-881 (2011) (*Preliminary versions in ISAAC 2007 and ISAAC 2008*).

26. Daniel Lokshtanov, Venkatesh Raman, Saket Saurabh, Somnath Sikdar: On the directed Full Degree Spanning Tree problem. Discrete Optimization 8(1): 97-109 (2011) (*Preliminary version in IWPEC 2009*).

27. Fedor Fomin, Daniel Lokshtanov, Venkatesh Raman and Saket Saurabh: Subexponential Algorithms for Partial Cover Problems Information Processing Letters **111 (16)**: 814-818 (2011). (*Preliminary version in FSTTCS 2009*).

28. Neeldhara Misra, N. S. Narayanaswamy, Venkatesh Raman, Bal Sri Shankar: Solving min ones 2-sat as fast as vertex cover. Theoretical Computer Science 506: 115-121 (2013) (*Preliminary version in MFCS 2010*).

29. Robert Crowston, Gregory Gutin, Mark Jones, Venkatesh Raman, Saket Saurabh: Parameterized complexity of MaxSat Above Average. Theor. Comput. Sci. 511: 77-84 (2013) (*Preliminary version in LATIN 2012*).

30. Pinar Heggernes, Dieter Kratsch, Daniel Lokshtanov, Venkatesh Raman, Saket Saurabh: Fixed-parameter algorithms for Cochromatic Number and Disjoint Rectangle Stabbing via iterative localization. Inf. Comput. 231: 109-116 (2013) (*Preliminary version in SWAT 2010*).

31. 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) (*Preliminary version in STACS 2010*).

32. Venkatesh Raman, Saket Saurabh, Ondrej Such: An FPT algorithm for Tree Deletion Set. J. Graph Algorithms Appl. 17(6): 615-628 (2013) (*Preliminary version in WALCOM 2013*).

33. 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) (*Preliminary version in ISAAC 2011*).

34. Fedor V. Fomin, Daniel Lokshtanov, Venkatesh Raman, Saket Saurabh, B. V. Raghavendra Rao: Faster algorithms for finding and counting subgraphs. J. Comput. Syst. Sci. 78(3): 698-706 (2012)

35. 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) (*Preliminary version in FCSTTCS 2006*).

36. 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) (*Preliminary version in ESA 2009*).

37. J. Ian Munro, Rajeev Raman, Venkatesh Raman, S. Srinivasa Rao: Succinct representations of permutations and functions. Theor. Comput. Sci. 438: 74-88 (2012) (*Preliminary version in ICALP 2003 and ICALP 2004*).

38. Neeldhara Misra, Geevarghese Philip, Venkatesh Raman, Saket Saurabh: On Parameterized Independent Feedback Vertex Set. Theoretical Computer Science 461: 65-75 (2012). (*Preliminary version in COCOON 2011*).

39. Venkatesh Raman, Saket Saurabh: Short Cycles Make W -hard Problems Hard: FPT Algorithms for W -hard Problems in Graphs with no Short Cycles. Algorithmica 52(2): 203-225 (2008). (*Preliminary version in SWAT 2006*).

40. Rajeev Raman, Venkatesh Raman and Srinivasa Rao Satti: Succinct indexable dictionaries with applications to encoding k-ary trees, prefix sums and multisets *ACM Transactions on Algorithms* **3(4)** (2007) Article 43, (*Preliminary version in SODA 2002*).

41. Richard F. Geary, Rajeev Raman and Venkatesh Raman: Succinct ordinal trees with level-ancestor queries: *ACM Transactions on Algorithms* **2(4)** (2006) 510-534. (*Preliminary version in SODA 2004*).

42. Venkatesh Raman, Saket Saurabh: Improved fixed parameter tractable algorithms for two "edge" problems: MAXCUT and MAXDAG. Inf. Process. Lett. 104(2): 65-72 (2007)

43. Venkatesh Raman, Somnath Sikdar: Parameterized complexity of the induced subgraph problem in directed graphs. Inf. Process. Lett. 104(3): 79-85 (2007)

44. Venkatesh Raman, Saket Saurabh, Somnath Sikdar: Efficient Exact Algorithms through Enumerating Maximal Independent Sets and Other Techniques. Theory Comput. Syst. 41(3): 563-587 (2007) (*Preliminary version in ICTCS 2005*).

45. Venkatesh Raman, Saket Saurabh and C. R. Subramanian: Faster fixed parameter tractable algorithms for finding feedback vertex sets *ACM Transactions on Algorithms* **2(3)** (2006) 403-415 (*Preliminary versions in ISAAC 2002*).

46. Meena Mahajan, Raghavan Rama, Venkatesh Raman, S. Vijaykumar: Approximate Block Sorting. Int. J. Found. Comput. Sci. 17(2): 337-356 (2006)

47. Venkatesh Raman and Saket Saurabh: Parameterized algorithms for feedback set problems and their duals in tournaments *Theoretical Computer Science* **351(3)** (2006) 446-458 (*Preliminary versions in WADS 2003 and IWPEC 2004*).

48. Richard F. Geary, Naila Rahman, Rajeev Raman, Venkatesh Raman: A simple optimal representation for balanced parentheses. Theor. Comput. Sci. 368(3): 231-246 (2006) (*Preliminary version in CPM 2004*).

49. David Benoit, Erik D. Demaine, J. Ian Munro, Rajeev Raman, Venkatesh Raman and S. Srinivasa Rao: Representing Trees of Higher Degree *Algorithmica* **43 (4)** (2005) 275-292. (*Preliminary versions in WADS 1999 and ISAAC 1999*).

50. Jaikumar Radhakrishnan and Venkatesh Raman: A Tradeoff between Search and Update in Dictionaries: *Information Processing Letters* **80** (5) (2001) 243-247.

51. R. Balasubramanian, Venkatesh Raman, V. Yegnanarayanan: On the pseudoachromatic number of join of graphs. International Journal of Computer Mathematics 80(9): 1131-1137 (2003).

52. Subhash Khot and Venkatesh Raman: Parameterized Complexity of Finding Subgraphs with Hereditary Properties: *Theoretical Computer Science* **289** (2002) 997-1008 (*Preliminary version in COCOON 2000*)

53. Meena Mahajan and Venkatesh Raman: Parameterizing Above the Guarantee: MaxSat and MaxCut *Journal of Algorithms* **31** (1999) 335-354.

54. Ian Munro, Venkatesh Raman and S. Srinivasa Rao: Efficient Suffix Trees, *Journal of Algorithms* **39** 205-222 (2001). (*Preliminary version in FSTTCS 1998*).

55. Venkatesh Raman and Sarnath Ramnath: Improved Upper Bounds for Time-Space Tradeoffs for Selection, *Nordic Journal of Computing* **6** (1999) 162-180 (*Preliminary version in SWAT 1998*).

56. R.Balasubramanian, Venkatesh Raman and Michael R. Fellows, An Improved Fixed Parameter Algorithm for Vertex Cover in *Information Processing Letters* **65** (1998) 163-168.

57. Ian Munro and Venkatesh Raman: 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.*)

58. Meena Mahajan, Venkatesh Raman, Somnath Sikdar: Parameterizing above or below guaranteed values. J. Comput. Syst. Sci. 75(2): 137-153 (2009) (*Preliminary version in IWPEC 2006*).

59. J. Ian Munro and Venkatesh Raman: Fast Stable In-Place Sorting with $O(n)$ Data Moves. *Algorithmica* **16** (2) (1996) 151-160. (*Preliminary version in FSTTCS 1991*).

60. J. Ian Munro and Venkatesh Raman: Selection from Read-Only Memory and Sorting with minimum Data Movement *Theoretical Computer Science* **165** (1996) 311-323. (*Preliminary version in FSTTCS 1992*).

61. J. Ian Munro and Venkatesh Raman: Sorting with Minimum Data Movement *Journal of Algorithms* **13** (1992) 374-393. (*Preliminary version in WADS 1989*).

62. Venkatesh Raman: Finding The Best Edge-Packing for Two-Terminal Reliability is NP-hard, *Journal of Combinatorial Mathematics and Combinatorial Computing* **9**, (1991) 91-96.

63. J. Ian Munro, Venkatesh Raman and Jeffrey. S. Salowe), Stable In Situ Sorting and Minimum Data Movement *BIT* **30**, (1990) 220-234

Selected Refereed Conference Publications (not covered by above)

1. Niranka Banerjee, Venkatesh Raman, Srinivasa Rao Satti: Maintaining Chordal Graphs Dynamically: Improved Upper and Lower Bounds. Proceedings of CSR 2018: 29-40

2. Dishant Goyal, Ashwin Jacob, Kaushtubh Kumar, Diptapriyo Majumdar, Venkatesh Raman: Structural Parameterizations of Dominating Set Variants. Proceedings of CSR 2018: 157-168

3. Sankardeep Chakraborty, Anish Mukherjee, Venkatesh Raman, Srinivasa Rao Satti: A Framework for In-place Graph Algorithms. Proceedings of ESA 2018: 13:1-13:16

4. Pranav Arora, Aritra Banik, Vijay Kumar Paliwal, Venkatesh Raman: Some (in)tractable Parameterizations of Coloring and List-Coloring. Proceedings of FAW 2017:

5. Aritra Banik, Pratibha Choudhary, Daniel Lokshtanov, Venkatesh Raman, Saket Saurabh: A Polynomial Sized Kernel for Tracking Paths Problem. LATIN 2018: 94-107 2017

6. Arindam Biswas, Varunkumar Jayapaul, Venkatesh Raman: Improved Bounds for Poset Sorting in the Forbidden-Comparison Regime. CALDAM 2017: 50-59

7. Dishant Goyal, Varunkumar Jayapaul, Venkatesh Raman: Elusiveness of Finding Degrees. CALDAM 2017: 242-253

8. Diptapriyo Majumdar, Rian Neogi, Venkatesh Raman, Prafullkumar Tale: Exact and Parameterized Algorithms for (k, i)-Coloring. CALDAM 2017: 281-293

9. Arindam Biswas, Varunkumar Jayapaul, Venkatesh Raman, Srinivasa Rao Satti: The Complexity of Finding (Approximate Sized) Distance-d Dominating Set in Tournaments. FAW 2017: 22-33

10. Aritra Banik, Fahad Panolan, Venkatesh Raman, Vibha Sahlot, Saket Saurabh: Parameterized Complexity of Geometric Covering Problems Having Conflicts. WADS 2017: 61-72

11. Sudeshna Kolay, Fahad Panolan, Venkatesh Raman, Saket Saurabh: Parameterized Algorithms on Perfect Graphs for Deletion to (r, l)-Graphs. Proceedings of MFCS 2016: 75:1-75:13

12. 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

13. Jia Hui (Jimmy) Liang, Vijay Ganesh, Krzysztof Czarnecki, Venkatesh Raman: SAT-based analysis of large real-world feature models is easy. Proceedings of SPLC 2015: 91-100

14. Moshe Lewenstein, J. Ian Munro, Patrick K. Nicholson, Venkatesh Raman: Improved Explicit Data Structures in the Bitprobe Model. ESA 2014: 630-641

15. Paul S. Bonsma, Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman: The Complexity of Bounded Length Graph Recoloring and CSP Reconfiguration. IPEC 2014: 110-121

16. Amer E. Mouawad, Naomi Nishimura, Venkatesh Raman, Marcin Wrochna: Reconfiguration over Tree Decompositions. IPEC 2014: 246-257

17. Fedor Fomin, Daniel Lokshtanov, Venkatesh Raman and Saket Saurabh: Bidimensionality and EPTAS, in the proceedings of ACM-SIAM symposium on Discrete Algorithms (SODA) 2011: 748-759.

18. Fedor Fomin, Daniel Lokshtanov, Venkatesh Raman and Saket Saurabh, Fast Local search algorithms for weighted feedback arc set in tournaments, in the proceedings of AAAI 2010.

19. V. Arvind and Venkatesh Raman,
Approximation Algorithms for Some Parameterized Counting Problems *Electronic Colloqium on Computational Complexity, ECCC-TR02-031* in the proceedings of ISAAC 2002, Vancouver, Canada August (2002) (Springer Verlag, LNCS **2518**) 453-464.

20. J. I. Munro, Venkatesh Raman and A. J. Storm,
Representing Dynamic Trees Succinctly *Proceedings of the 12th ACM-SIAM Symposium on Discrete Algorithms (SODA)* January (2001) 529-536.

21. Rajeev Raman, Venkatesh Raman and S. Srinivasa Rao, Succinct Dynamic Data Structures 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.

22. Jaikumar Radhakrishnan, Venkatesh Raman and S. Srinivasa Rao, Explicit Deterministic Constructions for Membership in Bitprobe Model Proceedings of the European Symposium on Algorithms (ESA 2001), Springer Verlag LNCS **2161** (2001) 290-299.

23. Nikhil Bansal and Venkatesh Raman, Upper Bounds for MaxSat: Further Improved in *Proceedings of Tenth International Symposium on Algorithms and Computation*, Springer Verlag, LNCS **1741** December 1999, 247-258

24. V. Estivill-Castro and Venkatesh Raman, Distance Competitive Orientation of Graphs *Proceedings of the Seventh Australian Workshop on Combinatorial Algorithms AWOCA-96* (1996) 39-46.

25. R. Balasubramanian and Venkatesh Raman, Path Balance Heuristic for Self Adjusting Binary Search Trees *Proceedings of the 15th FST & TCS conference*, Lecture Notes in Computer Science, Springer Verlag **1026** (1995) 338-348

26. Venkatesh Raman, Some Hard Problems in (Weighted) Tournaments, *Proceedings of the Fifth National Seminar on Theoretical Computer Science*, Bombay (1995) 115-122.

27. J. Ian Munro and Venkatesh Raman, Sorting Multisets and Vectors In-Place *Proceedings of the 2nd Workshop on Algorithms and Data Structures*, Lecture Notes in Computer Science, Springer Verlag **519** (1991) 473-480.

28. Vladimir Estivill-Castro and Venkatesh Raman, Visibility in Finitely Oriented Polygons *Proceedings of the Second Canadian Conference in Computational Geometry*, Ottawa, Canada (1990) 181-185.

29. J. I. Munro and Venkatesh Raman, Stable In-Place Quicksort *Proceedings of the Fifth Annual University at Buffalo Graduate Conference* (1990) 17-22.

Technical Reports, Surveys, Lecture Notes

30. Diptapriyo Majumdar, Rian Neogi, Venkatesh Raman, S. Vaishali: Tractability of Konig Edge Deletion Problems. CoRR abs/1811.04560 (2018)

31. Parameterized Complexity, *Proceedings of the Seventh National Seminar on Theoretical Computer Science*, June (1997) I-1 to I-18.

32. 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.

33. 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

Visits to International Institutes:

1. Visiting Professor, University of Waterloo, Canada during

   - September 2012 to August 2013
   - June-July 2017
   - May 2014

   (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, Max Planck Institüt for Informatik at Saarbrücken, Germany during the month of March 1998 (Colloborator: Gerth Brodal)

PhD Students Supervised

Varun Kumar Jayapaul (Chennai Mathematical Institute)
Thesis: Sorting and Selection in Restricted Models of Computation
December 2017

Sankardeep Chakraborty
Thesis: Space Efficient Graph Algorithms
March 2018

Diptapriyo Majumdar
Classical and Approximate kernels for structural parameterizations of some graph parameters
October 2018.

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 'Space efficient algorithms, data structures and streams', a conference in honor of Ian Munro at University of Waterloo, Canada in August 2013.
- Organized the workshop on 'advances in data structures' at IMSc during December 2011.
- Program Committee member of FAW 2018, CALDAM 2018, IPEC 2017, CALDAM 2017, FAW 2015, SWAT 2014, FAW 2014, FST & TCS 2014 (Co-Chair), IPEC 2013, 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.
- Prinicipal 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.
- Member of executive council of Association of Computing Machinery (ACM)- India since 2016. Vice-President since June 2018.