

Refereed Journal Articles

- J1.** S. Baswana and S. Sen. Planar Graph Blocking for External Searching. *Algorithmica* 34:298-308, 2002.
- J2.** S. Baswana and S. Sen. Approximate Distance Oracles for Unweighted graphs in $O(n^2)$ time. *ACM Transaction on Algorithms* 2(4): 557-577, 2006.
- J3.** S. Baswana and R. Hariharan and S. Sen. Improved Decremental Algorithms for Maintaining Transitive Closure and All-pairs Shortest Paths in Digraphs. *Journal of Algorithms* 62(2): 74-92, 2007.
- J4.** S. Baswana and S. Sen. A Simple Linear Time Randomized Algorithm for Computing Sparse Spanners in Weighted Graphs. *Random Structures and Algorithms* 30(4): 532-563, 2007.
- J5.** S. Baswana. Streaming algorithm for graph spanners - single pass and constant processing time per edge. *Information Processing Letters* 106(3), 110-114, 2008.
- J6.** S. Baswana and V.Goyal and S. Sen. All-Pairs Nearly 2-Approximate Shortest Paths in $O(n^2 \text{ polylog } n)$ time. *Theoretical Computer Science* 410, 84-93, 2009.
- J7.** S. Baswana and T. Kavitha, K. Mehlhorn, and S. Pettie. Additive Spanners and (α, β) -Spanners. *ACM Transaction on Algorithms* (in press).
- J8.** S.Baswana and T. Kavitha. Faster Algorithms for All-Pairs Approximate Shortest Paths in Undirected Graphs. *SIAM Journal of Computing* (accepted in September 2009).

Refereed Conference Proceedings

- C1.** N. Khanna and S. Baswana. Approximate shortest paths under single vertex failure : Optimal size data structures for unweighted graphs. *Proc. 27th International Symposium on Theoretical Aspects of Computer Science (STACS)*, Nancy, France, March 4-6, 2010 (accepted).
- C2.** S. Baswana, S. Biswas, B. Doerr, T. Friedrich, P.P. Kurur, and F. Neumann. Computing Single Source Shortest Paths using Single-Objective Fitness Functions. *Proc. 10th ACM Symposium on Foundations of Genetic Algorithms*, Orlando, Florida, USA, January 9-11, 2009.
- C3.** S. Baswana, A. Gaur, S. Sen, and J. Upadhyay. Distance oracles for unweighted graphs : breaking the quadratic barrier with constant additive error. *Proc. 35th International Colloquium on Automata, Languages and Programming (ICALP)*, Springer-Verlag, Lecture Notes in Computer Science, volume 5125, pp. 609-621, 2008.
- C4.** S. Baswana and S. Sarkar. Fully Dynamic Polylogarithmic Algorithms for Graph Spanners. *Proc. 19th Symposium on Discrete Algorithms (SODA)*, pp. 672-681. ACM and SIAM, 2008.
- C5.** S. Baswana, S. Mehta and V. Powar. Implied Set Closure and Its Application to Memory Consistency Verification. *Proc. 20th International Conference on Computer Aided Verification (CAV)*, Springer-Verlag, Lecture Notes in Computer Science, volume 5123, pp. 94-106, 2008.
- C6.** S. Baswana and T. Kavitha. Faster Construction of Approximate Distance Oracles and All-Pairs Small Stretch Paths. *Proc. 47th Symposium on Foundations of Computer Science (FOCS)*, pp. 591-602. IEEE, 2006.

- C7. S. Baswana. Dynamic Algorithms for Graph Spanners. *Proc. 14th European Symposium on Algorithms (ESA)*, Springer-Verlag, Lecture Notes in Computer Science, volume 4168, pp. 76-87, 2006.
- C8. S. Baswana, T. Kavitha, K. Mehlhorn, and S. Pettie. New Constructions of (α, β) -Spanners and Purely Additive Spanners. *Proc. 16th Symposium on Discrete Algorithms (SODA)*, pp. 672-681. ACM and SIAM, 2005.
- C9. S. Baswana, V. Goyal, and S. Sen. All-pairs nearly 2-approximate shortest paths in $O(n^2 \text{polylog} n)$ time. *Proc. 22nd International Symposium on Theoretical Aspects of Computer Science (STACS)*, Springer-Verlag, Lecture Notes in Computer Science, volume 3404, pp. 666-679, 2005. This paper was **among the selected best papers** of the conference and was invited for publication in a special issue of the journal *Theory of Computing Systems*.
- C10. S. Baswana and S. Sen. Approximate Distance Oracles for Unweighted graphs in $O(n^2 \log n)$ time. *Proc. 15th Symposium on Discrete Algorithms (SODA)*, pp. 264-273, ACM and SIAM, 2004. This paper was **among the selected best papers** of the conference and was invited for publication in a special issue of the journal *ACM Transaction on Algorithms*.
- C11. S. Baswana and S. Sen. A Simple Linear Time Algorithm for Computing $(2k-1)$ -Spanners of size $O(kn^{1+1/k})$ in Weighted Graphs. *Proc. 30th International Colloquium on Automata, Languages and Programming (ICALP)*, Springer-Verlag, Lecture Notes in Computer Science, volume 2719, pp. 384-396, 2003. This paper was **among the selected best papers** of the conference and was invited for publication in a special issue of the journal *Theoretical Computer Science*.
- C12. S. Baswana, R. Hariharan, and S. Sen. Maintaining All-Pairs Approximate Shortest Paths Under Deletion of Edges. *Proc. 14th Symposium on Discrete Algorithms (SODA)*, pp. 394-403. ACM and SIAM, 2003.
- C13. S. Baswana, R. Hariharan, and S. Sen. Improved Decremental Algorithms for Maintaining Transitive Closure and All-pairs Shortest Paths in Digraphs. *Proc. 34th ACM Symposium on Theory of Computing (STOC)*, pp. 117-123, ACM, 2002.
- C14. S. Baswana and S. Sen. Planar Graph Blocking for External Searching. *Proc. 20th Symposium Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*, Springer-Verlag, Lecture Notes in Computer Science 1974, pp. 252-263, 2000.

Book Chapters

- B1. S. Baswana and S. Sen. Randomized graph data-structures for approximate shortest path problem. *Handbook of Data Structures and Applications*, ISBN 1584884355. Dinesh Mehta and Sartaj Sahni (Ed.), CRC Press, 2004.
- B2. S. Baswana and S. Sen. Simple Algorithms for Spanners in Weighted Graphs. *Encyclopedia of Algorithms*. Ming Yang Kao (Ed.), Springer, 2008.

Awards

Research:

- Young Engineer Award from Indian National Academy of Engineering for the year 2009.
- Research I Fellow for years 2007-2010 by Research I Foundation, Department of Computer Science and Engineering, IIT Kanpur.
- Outstanding Ph.D. Dissertation Award by IBM India Research Lab in 2005.
- Award for commendable research work in Inter Research Institute Students Seminar (IRISS) held in I.I.T. Delhi, March 28-29, 2003.

Teaching : Received letter of appreciation from Director IIT Kanpur for extra ordinary performance as instructor in the following courses.

Course No.	Course Name	Semester	No. of Students
CS345	Data Structures and Algorithms(II)	II, 2006-07	68
ESO211	Data Structures and Algorithms(I)	I, 2007-08	110
CS648	Randomized Algorithms	II, 2007-08	37
CS345	Data Structures and Algorithms(II)	II, 2008-09	70

The evaluation of the course is based on the students reaction survey conducted at the end of the course. An instructor receives the letter of appreciation from Director if he receives at least 3.5/4 points in the survey for his/her course.

Personal Data

Date of Birth : August 26, 1974

Nationality : Indian

Sex : Male

Marital Status : Married