

## Amitabh Chaudhary

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### Education

- **Ph.D. in Computer Science**, Johns Hopkins University, Baltimore. (10/02)  
Thesis: *Applied spatial data structures for large data sets*.  
Advisors: Michael T. Goodrich and Alexander S. Szalay.
- **M.Tech. in Computer Science**, Indian Institute of Technology, Mumbai, India. (05/96)  
Thesis: *Approximation algorithms for the achromatic number*.  
Advisor: Sundar Vishwanathan.
- **B.Tech. in Electrical Engineering**, Indian Institute of Technology, Kharagpur, India. (05/92)  
Thesis: *Analysis of some digital signal Processing algorithms on cache-coherent multiProcessors*.  
Advisor: R. N. Mahapatra.

### Professional Experience

- **Assistant Professor**, Computer Science and Engineering, (01/05 – present)  
University of Notre Dame, Notre Dame
- **Postdoctoral Research Associate**, Computer Science and Engineering, (07/04 – 12/04)  
University of Notre Dame, Notre Dame
- **Associate Specialist**, School of Information & Computer Science, (10/02 – 06/04)  
University of California, Irvine
- **Software Engineer**, CMC, Kolkata, India (07/92 – 11/93)

### Research Interests

- Online Algorithms
- Graph Algorithms

### Honors and Awards,

1. Employee Appreciation Award, CMC, Kolkata, India (1993).
2. National Talent Search Scholarship, awarded by National Council for Educational Research and Training, New Delhi, India (1986). Awarded yearly to about 150 students chosen nationwide.

**Refereed Conference Publications**

1. A. Chaudhary and S. Vishwanathan. Approximation algorithms for the achromatic number. In *Proc. 8th ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 558–563, 1997.
2. A. Chaudhary, B. F. de Medeiros, C. A. Duncan, M. T. Goodrich, and A. S. Szalay. Parameterized balanced aspect ratio trees. In *Proc. 4th CGC Workshop on Computational Geometry*, 1999.
3. A. Bagchi, A. Chaudhary, R. Garg, M. T. Goodrich, and V. Kumar. Seller-focused algorithms for online auctioning. In *Proc. 7th International Workshop on Algorithms and Data Structures (WADS)*, pages 135–147, 2001.
4. A. Bagchi, A. Chaudhary, P. Kolman, and C. Scheideler. Algorithms for fault-tolerant routing in circuit switched networks. In *Proc. 14th ACM Symposium on Parallel Algorithms and Architectures (SPAA)*, pages 265–274, 2002.
5. A. Chaudhary, A. S. Szalay, and A. W. Moore. Very fast outlier detection in large multidimensional data sets. In *Proc. ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery (DMKD)*, 2002.
6. A. Bagchi, A. Chaudhary, and P. Kolman. Short length Menger’s theorem and reliable optical routing. In *Proc. 15th ACM Symposium on Parallel Algorithms and Architectures (SPAA)*, pages 246–247, 2003.
7. A. Bagchi, A. Chaudhary, M. T. Goodrich, and S. Xu. Constructing disjoint paths for secure communication. In *Proc. 17th International Symposium on Distributed Computing (DISC)*, pages 181–195, 2003.
8. A. Bagchi, A. Chaudhary, D. Eppstein, and M. T. Goodrich. Deterministic sampling and range counting in geometric data streams. In *Proc. 12th ACM Annual Symposium on Computational Geometry (SoCG)*, pages 144–151, 2004.
9. A. Bagchi, A. Bhargava, D. Eppstein, A. Chaudhary, and C. Scheideler. On the effects of faults on network expansion. In *Proc. 16th ACM Symposium on Parallel Algorithms and Architectures (SPAA)*, pages 286–293, 2004.
10. T. Malik, R. Burns, and A. Chaudhary. Bypass Caching: Making scientific databases good network citizens. In *Proc. 21st International Conference on Data Engineering (ICDE)*, pages 94–105, 2005.
11. A. Chaudhary, M.T. Goodrich. Balanced aspect ratio trees revisited. In *Proc. 9th International Workshop on Algorithms and Data Structures (WADS)*, pages 73–85, 2005.
12. A. Pawling, N. Chawla, and A. Chaudhary. Computing Information Gain in Data Streams. ICDM 2005 Workshop on Temporal Data Mining: Algorithms, Theory, and Applications, 2005.
13. A. Chaudhary, D.Z. Chen, X.S. Hu, M.T. Niemier, R. Ravichandran, and K. Whitton. Eliminating Wire Crossings for Molecular Quantum-dot Cellular Automata Implementation. In *Proc. International Conf. of Computer Aided Design (ICCAD)*, pages 565–571, 2005.
14. A. Pawling, N. Chawla, and A. Chaudhary. Evaluation of Summarization Schemes for Learning in Streams. In *Proc. 10th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD)*, pages 347–358, 2006.

15. A. Chaudhary, D. Z. Chen, R. Fleischer, X. S. Hu, J. Li, M. T. Niemier, Z. Xie, and H. Zhu. Approximating the maximum sharing problem. In *Proc. 10th Workshop on Algorithms and Data Structures (WADS)*, 2007.

### Journal Publications

1. A. Chaudhary and S. Vishwanathan. Approximation algorithms for the achromatic number. *J. Algorithms*, 41(2), pages 404–416, 2001.
2. A. Bagchi, A. Chaudhary, and P. Kolman. Short length Menger’s theorem and reliable optical routing. *Theoretical Computer Science*, 339(2-3), pages 315–332, 2005.
3. A. Bagchi, A. Bhargava, D. Eppstein, A. Chaudhary, and C. Scheideler. On the effects of faults on network expansion. *Theory of Computing Systems*, special issue devoted to the best theoretical papers from SPAA ’04, 39:6, 903–928, 2006.
4. A. Bagchi, A. Chaudhary, M.T. Goodrich, C. Li, and M. Shmueli-Scheuer. Achieving Communication Efficiency through Push-Pull Partitioning of Semantic Spaces to Disseminate Dynamic Information. *IEEE Trans. on Knowledge and Data Engineering (TKDE)*, 18(10), 1352–1367, 2006.
5. A. Bagchi, A. Chaudhary, D. Eppstein, and M. T. Goodrich. Deterministic sampling and range counting in geometric data streams. *ACM Trans. on Algorithms*, accepted for publication.
6. A. Chaudhary, D.Z. Chen, X.S. Hu, M.T. Niemier, R. Ravichandran, and K. Whitton. Eliminating Wire Crossings for Molecular Quantum-dot Cellular Automata Implementation. *IEEE Trans. on Computer-aided Design of Integrated Circuits and Systems*, accepted for publication.