

C. Seshadhri

Curriculum Vitae

IBM Almaden Research Center
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EDUCATION

- Princeton University** 2003–2008
Ph.D. Candidate in Computer Science
Advisor: Prof. Bernard Chazelle
Thesis Topic: Sublinear Distributed Reconstruction
- Indian Institute of Technology, Kanpur** 1999–2003
B.Tech. in Computer Science and Engineering
Advisor: Prof. Manindra Agrawal
Thesis Topic: Generating Large Primes Using Cyclotomic Polynomials

RESEARCH INTERESTS

- Sublinear Algorithms and Property Testing
- Approximation Algorithms
- Computational Geometry

A major portion of my research is the design of *sublinear* time algorithms. These algorithms read an extremely small portion of their input to make their decision. My work deals with a wide variety of combinatorial and geometric problems in this domain. I have done work on *self-improving algorithms* - algorithms that are able to use the structure of their input distribution to optimize their running time. This has led to better algorithms for classical geometric problems under certain input settings. I have also been involved in problems in online learning and polynomial identity testing.

WORK EXPERIENCE

- **Theory Group, IBM Almaden Research Center, CA** September 2008 - present
Postdoctoral researcher
- **Theory Group, IBM Almaden Research Center, CA** Summer 2007
Summer Intern
- **Tata Institute of Fundamental Research, Mumbai** Summer 2002
Summer Intern

HONORS

- **Awarded *Director's Gold Medal* in the IIT Kanpur class of 2003**
Awarded one per class of 450 students to the best all-round student
- **3rd in the IIT Kanpur class of 2003**
With GPA of 9.9/10, placed fourth in a class of 450 students
- **Scholarship in National Talent Search Examination (NTSE) 1997**
750 students are awarded scholarships every year all over India

PUBLICATIONS

- **Self-Improving Algorithms for Convex Hulls** (with Kenneth Clarkson and Wolfgang Mulzer), Proceedings of the 21st Symposium on Discrete Algorithms (SODA 2010)
- **Efficient Learning Algorithms for Changing Environments** (with Elad Hazan), Proceedings of 26th International Conference on Machine Learning (ICML 2009)
- **An Almost Optimal Rank Bound for Depth-3 Identities** (with Nitin Saxena), Proceedings of 24th Conference on Computation Complexity (CCC 2009)
- **Noise Tolerance of Expanders and Sublinear Expander Reconstruction** (with Satyen Kale and Yuval Peres), Proceedings of 49th Symposium on Foundations of Computer Science (FOCS 2008)
- **Testing Expansion in Bounded Degree Graphs** (with Satyen Kale), Proceedings of 35th International Colloquium on Automata, Languages, and Programming (ICALP 2008)
- **Self-Improving Algorithms for Delaunay Triangulations** (with Kenneth Clarkson) Proceedings of 24th Symposium on Computational Geometry (SOCG 2008).
- **Parallel Monotonicity Reconstruction** (with Michael Saks), Proceedings of 19th Symposium on Discrete Algorithms (SODA 2008).
- **Online Geometric Reconstruction** (with Bernard Chazelle), Proceedings of 22nd Symposium on Computational Geometry (SOCG 2006).
- **Self-Improving Algorithms** (with Nir Ailon, Bernard Chazelle, and Ding Liu), Proceedings of 17th Symposium on Discrete Algorithms (SODA 2006).
- **RAM Simulation of BGS model of Abstract State Machines**, (with Anil Seth and Somenath Biswas) Proceedings of 12th International Workshop on Abstract State Machines (ASM 2005).
- **Property-Preserving Data Reconstruction** (with Nir Ailon, Bernard Chazelle, and Ding Liu), Proceedings of 15th International Symposium on Algorithms and Computation (ISAAC 2004).

- **Estimating the Distance to a Monotone Function** (with Nir Ailon, Bernard Chazelle, and Ding Liu), Proceedings of 8th International Workshop on Randomization and Computation (RANDOM 2004).

INVITED TALKS

- **Theory seminar, Hausdorff Center for Mathematics, Bonn** November 2009
Invited talk on *Self-Improving Algorithms for Convex Hulls*
- **Theory seminar, IBM Almaden Research Center, CA** October 2008
Invited talk on *Noise Tolerance of Expanders and Sublinear Expander Reconstruction*
- **Theory seminar, Computer Science Department, University of Toronto, Canada** February 2008
Invited talk on *Adaptive Algorithms for Online Optimization Problems*
- **Theory seminar, IBM T. J. Watson Research Center, NY** February 2008
Invited talk on *Adaptive Algorithms for Online Optimization Problems*
- **Theory seminar, Computer Science Department, Rutgers University, NJ** February 2008
Invited talk on *Parallel Monotonicity Reconstruction*
- **Theory seminar, Google, NY** February 2008
Invited talk on *Adaptive Algorithms for Online Optimization Problems*
- **Theory seminar, Computer Science Department, Princeton University, NJ** February 2008
Invited talk on *Adaptive Algorithms for Online Optimization Problems*
- **Theory seminar, Microsoft Research, WA** December 2007
Invited talk on *Parallel Monotonicity Reconstruction*
- **Theory seminar, IBM Almaden Research Center, CA** August 2007
Invited talk on *Self-Improving Algorithms*
- **Theory seminar, IBM T. J. Watson Research Center, NY** March 2007
Invited talk on *Online Reconstruction*
- **DIMACS Mixer Series, Rutgers University, NJ** October 2006
Invited talk on *Online Geometric Reconstruction*
- **Theory seminar, Computer Science Department, Princeton University, NJ** September 2004
Invited talk on *Estimating Distance to Monotonicity*

TEACHING EXPERIENCE

- **Computer Science Department, Princeton University, NJ** Spring 2006
Teaching Assistant for COS 451: *Computational Geometry*
- **Computer Science Department, Princeton University, NJ** Fall 2004
Teaching Assistant for COS 226: *Algorithms and Data Structures*

PROGRAMMING LANGUAGES

C, Java

REFERENCES

Available upon request.