

Daniel R. Golovin

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RESEARCH INTERESTS

Strongly history-independent/uniquely-represented data structures; Approximation & online algorithms; Resource allocation problems; Algorithmic game theory; Provably sound ways of dealing with uncertainty.

EDUCATION

2003–present	<i>Doctoral candidate</i> (degree anticipated summer 2008) Carnegie Mellon University, Pittsburgh, PA School of Computer Science Advised by Guy Blelloch, Professor, Dept. of Computer Science
2003–2006	<i>Masters of Science in Computer Science</i> Carnegie Mellon University, Pittsburgh, PA School of Computer Science Advised by Guy Blelloch, Professor, Dept. of Computer Science
1999–2003	<i>Bachelor of Science, Magna Cum Laude, in Computer Science, with a minor in applied mathematics.</i> Cornell University, Ithaca, NY College of Engineering

HONORS

2003–present	Graduate Fellowship at Carnegie Mellon University
2007	IEEE FOCS Student Travel Grant
2007	ACM EC Student Travel Scholarship Award
2003 & 2004	Honorable Mention, NSF Graduate Fellowship
2003	Finalist, John and Fannie Hertz Foundation Graduate Fellowship
2003	Graduated Cornell University College of Engineering, <i>Magna Cum Laude</i>
2002	Selected for the team of three students representing Cornell University in the William Lowell Putnam mathematical competition.
1998	New Jersey Governor’s School in the Sciences Scholar

PUBLICATIONS

Papers in Preparation

- [1] Konstantin Andreev, Charles Garrod, Daniel Golovin, Bruce Maggs, and Adam Meyerson. Simultaneous source location.

- [2] Daniel Golovin, Anupam Gupta, Amit Kumar, and Kanat Tangwongsan. All-Norms and All- L_p -Norms approximation algorithms. Technical Report CMU-CS-07-153, School of Computer Science, Carnegie Mellon University, September 2007.
- [3] Matthew Streeter and Daniel Golovin. An online algorithm for maximizing submodular functions. Technical Report CMU-CS-07-171, School of Computer Science, Carnegie Mellon University, December 2007.

Refereed Journal and Conference Papers

- [1] Guy E. Blelloch, Daniel Golovin, and Virginia Vassilevska. Uniquely represented data structures for computational geometry. In *Algorithm Theory - SWAT 2008, 11th Scandinavian Workshop on Algorithm Theory, Gothenburg, Sweden, July 2-4, 2008, Proceedings.*, Lecture Notes in Computer Science. Springer, 2008. To appear.
- [2] Guy E. Blelloch and Daniel Golovin. Strongly history-independent hashing with applications. In *FOCS '07: 48th Annual IEEE Symposium on Foundations of Computer Science*, pages 272–282. IEEE, October 2007.
- [3] Matthew Streeter, Daniel Golovin, and Stephen F. Smith. Combining multiple heuristics online. In *AAAI '07: Proceedings of the Twenty-Second AAAI Conference on Artificial Intelligence*, pages 1197–1203, Menlo Park, California, 2007. AAAI Press.
- [4] Matthew Streeter, Daniel Golovin, and Stephen F. Smith. Restart schedules for ensembles of problem instances. In *AAAI '07: Proceedings of the Twenty-Second AAAI Conference on Artificial Intelligence*, pages 1204–1210, Menlo Park, California, 2007. AAAI Press.
- [5] Daniel Golovin. Stochastic packing-market planning. In *EC '07: Proceedings of the 8th ACM conference on Electronic commerce*, pages 172–181, New York, NY, USA, 2007. ACM Press.
- [6] Daniel Golovin, Viswanath Nagarajan, and Mohit Singh. Approximating the k-multicut problem. In *SODA '06: Proceedings of the seventeenth annual ACM-SIAM Symposium on Discrete algorithms*, pages 621–630, New York, NY, USA, 2006. ACM Press.
- [7] Daniel Golovin, Anupam Gupta, Bruce M. Maggs, Florian Oprea, and Michael K. Reiter. Quorum placement in networks: Minimizing network congestion. In *PODC '06: Proceedings of the twenty-fifth annual ACM symposium on Principles of distributed computing*, pages 16–25, New York, NY, USA, 2006. ACM Press.
- [8] Daniel Golovin, Vineet Goyal, and R. Ravi. Pay today for a rainy day: Improved approximation algorithms for demand-robust min-cut and shortest path problems. In B. Durand and W. Thomas, editors, *Proceedings of the 23rd Symposium on Theoretical Aspects of Computer Science, STACS 2006*, volume 3884 of *Lecture Notes in Computer Science*, pages 206–217. Springer-Verlag, 2006.
- [9] Daniel Golovin. A model for optimal path planning for self-reconfigurable robots. In *Proceedings of the 11th International Conference on Advanced Robotics, ICAR 2003*, 2003.

Technical Reports which do not overlap with above lists

- [1] Daniel Golovin. Max-min fair allocation of indivisible goods. Technical Report CMU-CS-05-144, School of Computer Science, Carnegie Mellon University, June 2005.

Other Publications

- [1] Daniel Golovin. More expressive market models and the future of combinatorial auctions. *SIGecom Exch.*, 7(1), 2007.
- [2] Matthew Streeter, Daniel Golovin, and Stephen F. Smith. Combining multiple constraint solvers: Results on the CPAI'06 competition data. In *Proceedings of the Second International CSP Solver Competition*, pages 11–18, 2008.

TEACHING

- Spring 2007 Teaching Assistant for Graduate Algorithms.
- Spring 2006 Teaching Assistant for undergraduate level Algorithm Design and Analysis.

PROFESSIONAL SERVICE

Reviewer for Journals and Conferences:

APPROX, FOCS, STOC, WINE.

RESEARCH TALKS

- April 2008 *Uniquely Represented Data Structures with Applications to Privacy*
Northeastern University Computer Science Department Colloquium
- March 2008 *Uniquely Represented Data Structures with Applications to Privacy*
University of Rochester Computer Science Department Seminar
- March 2008 *Uniquely Represented Data Structures with Applications to Privacy*
University of Massachusetts Amherst Computer Science Department Seminar
- Oct. 2007 *Strongly History Independent Hashing with Applications*
IEEE Symposium on Foundations of Computer Science
- June 2007 *Stochastic Packing-Market Planning*
ACM Conference on Electronic Commerce
- June 2006 *Robust Minimum Cut and Shortest Path Problems*
Amazon.com Algorithms Seminar
- May 2005 *Prize Collecting Cuts*
Lamps of ALADDIN Student Workshop

EMPLOYMENT EXPERIENCE

- Summer 2006 Research Intern, Amazon.com
I worked in the elite strategic planning and optimization team, and redesigned Amazon's core order-fulfillment algorithm, which decides how best to get merchandise from Amazon's distributed inventory system to the customers.
- Summer 2001 Research Intern, Xerox Palo Alto Research Center (PARC)
I worked on a variety of problems in the modular robotics lab, devised novel schemes for internal representation and planning, and built applications for robot control.

PERSONAL DETAILS

Citizenship: United States of America

REFERENCES

Available upon request.