

# CURRICULUM VITAE

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## EDUCATION

Ph.D.	Cornell University	2008	Computer Science Advisor: Dexter Kozen Thesis: <i>Incremental Optimization</i>
M.S.	Cornell University	2005	Computer Science
B.S.	Harvey Mudd College	2001	Math and Computer Science
	York High School	1997	Valedictorian

## AREAS OF EXPERTISE

Algorithm Design and Analysis, Optimization, Mathematical Modeling, Discrete Math.

## EMPLOYMENT

2002-07 **Research Assistant** for Dexter Kozen at Cornell University.  
Topic: Incremental Optimization.

2001-05 **Teaching Assistant** for various professors at Cornell University.  
Courses: Graduate Algorithms, Theory of Computing,  
Object-Oriented Programming & Data Structures, Intro to Computing.

2003 **Researcher** for Tapas Kanungo at IBM Almaden.  
Topic: Coding Theory.

2001 **Researcher** for Ran Libeskind-Hadas at Harvey Mudd College.  
Topic: Optical Routing.

2000 **Summer Intern** for Philip Sterne at Lawrence Livermore Nat'l Laboratory.  
Topic: Positron Spectroscopy.

1999 **Researcher** for Ran Libeskind-Hadas at Harvey Mudd College.  
Topic: Multicast Routing.

1998 **Researcher** for Margaret Fleck at Harvey Mudd College.  
Topic: Computer Vision.

1997 **Software Developer** at Unified Research Laboratories.  
Project: Perl CGI scripts for internal web management services.

1996 **Software Developer** at Christopher Newport University.  
Project: Java applets for graphical web book prototype.

## RELATED RESEARCH PROJECTS

2000-01 **Researcher** for Ran-Libeskind-Hadas at Harvey Mudd College.  
Project: The Computational Complexity of Motion Planning.

1999-00 **Researcher** for Andrew Bernoff at Harvey Mudd College.  
Project: Mathematical Modeling for Fair Isaac, Inc.

## PROGRAMMING EXPERIENCE

UNIX/Linux, Java, C/C++, FORTRAN 90, PERL, Matlab, Scheme, SML.

## PUBLICATIONS

### Journal Papers

1. J. R. Hartline and A. Sharp. “Incremental Flow,” *Networks*.
2. E. Miller, R. Libeskind-Hadas, D. Barnard, W. Chang, K. Dresner, W. Turner, and J. R. Hartline, “On the Complexity of Multicasting in WDM Networks with Multicast-Capable Switches,” *IEEE Journal on Selected Areas in Communications*, Vol. 22, No. 9, November 2004, pp. 1601-1612.
3. J. R. Hartline, R. Libeskind-Hadas, K. Dresner, E. Drucker, K. Ray, “Optimal Virtual Topologies for One-To-Many Communication in WDM Paths and Rings,” *IEEE/ACM Transactions on Networking*, Vol. 12, No. 2, April 2004, pp. 375-383.
4. J. R. Hartline and R. Libeskind-Hadas, “The Computational Complexity of Motion Planning,” *SIAM Review*, Vol. 45, No. 3, 2003, pp. 543-557.
5. R. Libeskind-Hadas, J. R. Hartline, P. Boothe, G. Rae, and J. Swisher, “On Multicast Algorithms for Heterogeneous Networks of Workstations,” *Journal of Parallel and Distributed Computing*, (special issue on cluster and network-based computing), Vol. 61, No. 11, November 2001, pp. 1665-1679.

### Refereed Conference Papers

6. J. R. Hartline and A. Sharp, “An Incremental Model for Combinatorial Maximization Problems,” *Workshop on Experimental Algorithms*, May 2006, Menorca, Spain.
7. J. R. Hartline and A. Sharp, “Incremental Flow,” *Proceedings of the International Network Optimization Conference*, March 2005, Lisbon, Portugal, pp. 681-687.
8. R. Libeskind-Hadas, J. R. Hartline, K. Dresner, E. Drucker, and K. Ray, “Multicast Virtual Topologies in WDM Paths and Rings with Splitting Loss,” *Proceedings of the Eleventh IEEE International Conference on Computer Communications and Networks*, October 2002, Miami, Florida, pp. 318-321.
9. R. Libeskind-Hadas and J. R. Hartline, “Efficient Multicast in Heterogenous Networks of Workstations,” *Proceedings of the International Conference on Parallel Processing Workshop on Network-Based Computing*, August 2000, Toronto, Canada, pp. 403-410.

## **Technical Reports**

10. J. Hafner, J. R. Hartline, and T. Kanungo, “R5X0: An Efficient High Distance Parity-Based Code with Optimal Update Complexity,” *IBM Technical Report* RJ 10322 (A0408-005), August 9, 2004.
11. J. R. Hartline, “Optimal Shortcuts for Balanced Search Trees,” *Cornell University Technical Report*, February, 2004.

## **In Progress**

12. J. R. Hartline and A. Sharp, “An Incremental Model for Combinatorial Minimization,” to be submitted.

## **Patents Pending**

13. J. Hafner, J. R. Hartline, and T. Kanungo. “RAID 5X0: a high distance RAID scheme with minimal update cost,” IBM patent disclosure, 2003.
14. J. Hafner, J. R. Hartline, and T. Kanungo. “RAID 5-Interleave: a high distance RAID scheme with bounded parity in-degree,” IBM patent disclosure, 2003.
15. J. Hafner, J. R. Hartline, and T. Kanungo. “IO Saver: a technique to amortize update costs in RAID systems,” IBM patent disclosure, 2003.

## **Non-CS Publications**

16. J. R. Hartline, “Why Students Stay Up Too Late: Sleep/Non-Sleep Habits of Harvey Mudd Undergraduates,” 27th Western Psychology Conference for Undergraduate Research, July 1998, Santa Clara, CA.

## **OTHER INTERESTS**

Ultimate Frisbee, Ice Hockey, Volleyball, Skiing.