

Curriculum Vitae

Todd S. Munson

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Education

1995 - B. S. Computer Science University of Nebraska at Omaha
1996 - M. S. Computer Science University of Wisconsin at Madison
2000 - Ph. D. Computer Science University of Wisconsin at Madison

Research Interests

Algorithm for numerical optimization and equilibrium problems, applications of mathematical programming, linear algebra for large sparse systems

Experience

1995 - 1996 Teaching Assistant
Department of Computer Science
University of Wisconsin at Madison

1996 - 1999 Research Assistant
Department of Computer Science
University of Wisconsin at Madison

1999 - 2000 Distinguished Graduate Fellow in Computer Science
Department of Computer Science
University of Wisconsin at Madison

2000 - 2002 Postdoctoral Research Associate
Mathematics and Computer Science Division
Argonne National Laboratory

Fall 2002 Lecturer
Electrical and Computer Engineering Department
Northwestern University

2002 - 2004 Enrico Fermi Scholar
Mathematics and Computer Science Division
Argonne National Laboratory

2004 - Assistant Scientist
Mathematics and Computer Science Division
Argonne National Laboratory

Professional Activities

Member: Institute for Operations Research and the Management Sciences, Mathematical Programming Society, Society for Industrial and Applied Mathematics

Referee: various journals including SIAM Journal on Optimization, SIAM Journal on Numerical Analysis, Mathematical Programming, Computational Optimization and Applications, Optimization Methods and Software, Journal of Global Optimization, Annals of Operations Research, and Journal of Economic Dynamics and Control

Moderator: Optimization Online (2000–)

Organizer: Optimization Technology Center Seminar Series (2001–2002)

Session Organizer: INFORMS International Meeting (2001), SIAM Conference on Optimization (2002), ICIAM Meeting (2003)

Awards and Prizes

2003	Beale-Orchard-Hayes Prize Mathematical Programming Society
2002 -	Enrico Fermi Scholar Argonne National Laboratory
2000	Outstanding Graduate Student Research Award University of Wisconsin at Madison
1999 - 2000	Distinguished Graduate Fellow in Computer Science University of Wisconsin at Madison
1999	SIAM Student Travel Award
1998	GAMS Corporation Travel Award
1997	Givens Research Associateship Argonne National Laboratory
1996	Summer Research Assistantship University of Wisconsin at Madison
1993	Participant in NSF Research Experience for Undergraduates Institute for Visual Information Processing University of Nebraska at Lincoln
1993 - 1995	Honors Scholarship Recipient University of Nebraska at Omaha
1992 - 1995	Hazel Emley Scholarship Recipient University of Nebraska at Omaha

Journal Publications

1. (with M. Ferris) “Interfaces to PATH 3.0: Design, Implementation, and Usage,” *Computational Optimization and Applications*, 12 (1999), pages 207–227.
2. (with M. Ferris and C. Kanzow) “Feasible Descent Algorithms for Mixed Complementarity Problems,” *Mathematical Programming*, 86 (1999), pages 475–497.
3. (with M. Ferris) “Complementarity Problems in GAMS and the PATH Solver,” *Journal of Economic Dynamics and Control*, 24 (2000), pages 165–188.
4. (with M. Ferris) “Modeling Languages and Condor: Metacomputing for Optimization,” *Mathematical Programming*, 88 (2000), pages 487–506.
5. (with F. Facchinei, M. Ferris, A. Fischer, and C. Kanzow) “The Semismooth Algorithm for Large Scale Complementarity Problems,” *INFORMS Journal on Computing*, 13 (2001), pages 294–311.
6. (with M. Ferris) “Interior-Point Methods for Massive Support Vector Machines,” *SIAM Journal on Optimization*, 13 (2003), pages 783–804.
7. (with M. Ferris) “Semismooth Support Vector Machines,” *Mathematical Programming*, to appear (2004).
8. (with J. Moré) “Computing Mountain Passes and Transition States,” *Mathematical Programming*, 100 (2004), pages 151–182.
9. (with E. Dolan, R. Fourer, and J.-P. Goux) “Kestrel: An Interface from Modeling Systems to the NEOS Server,” submitted to *INFORMS Journal on Computing*, 2002.
10. (with S. Benson) “Flexible Complementarity Solvers for Large-Scale Applications,” submitted to *Optimization Methods and Software*, 2003.
11. “An Averaging Method for Nash Games with Shared Decision Variables,” submitted to *Computational Management Science*, 2004.
12. “Mesh Shape-Quality Optimization Using the Inverse Mean-Ratio Metric,” submitted to *Mathematical Programming*, 2004.
13. (with E. Dolan and J. Moré) “Optimality Measures for Performance Profiles,” submitted to *SIAM Journal on Optimization*, 2004.
14. (with Y. Chen, B. Hobbs, and S. Leyffer) “Leader-Follower Equilibria for Electric Power and NO_x Allowances Markets,” submitted to *Computational Management Science*, 2004.
15. “Decomposition Games for Constrained Nonlinear Optimization,” Argonne Preprint, ANL/MCS-P1124-0204, in preparation, 2004.

Refereed Proceedings

16. (with M. Ferris) “Case Studies in Complementarity: Improving Model Formulation,” in Ill-Posed Variational Inequalities and Regularization Techniques, M. Thera and R. Tichatschke editors, Springer Verlag, 1999.
17. (with M. Ferris) “Preprocessing Complementarity Problems,” in Complementarity: Applications, Algorithms, and Extensions, M. Ferris, O. Mangasarian, and J.-S. Pang editors, Kluwer Academic Publishers, 2001.
18. (with M. Ferris and D. Ralph) “A Homotopy Method for Mixed Complementarity Problems Based on the PATH Solver,” in Numerical Analysis 1999, D. Griffiths and G. Watson editors, Chapman and Hall, 2000.
19. (with M. Ferris and K. Sinapiromsaran) “A Practical Approach to Sample-Path Simulation Optimization,” in Proceedings of the 2000 Winter Simulation Conference, J. Joines, R. Barton, K. Kang, and P. Fishwick editors, Omnipress, 2000.
20. (with L. Freitag, P. Knupp, and S. Shontz) “A Comparison of Optimization Software for Mesh Shape-Quality Improvement Problems,” in Proceedings of the 11th International Meshing Roundtable, 2002.
21. (with L. Freitag, P. Knupp, and S. Shontz) “A Comparison of Inexact Newton and Coordinate Descent Mesh Optimization Techniques,” to appear in Proceedings of the 13th International Meshing Roundtable, 2004.

Miscellaneous Articles

22. (with M. Ferris) “Linear Programming for Emergency Broadcast Systems,” SIAG/OPT Newsletter, 10 (1999), pages 6–8.
23. (with E. Dolan, R. Fourer, and J. Moré) “Optimization on the NEOS Server,” SIAM News, 35 (2002), pages 4–9.

Other Preprints and Technical Reports

24. “Algorithms and Environments for Complementarity,” Ph.D. Dissertation, Mathematical Programming Technical Report MP 00-02, University of Wisconsin at Madison, 2000.
25. (with E. Dolan) “The Kestrel Interface to the NEOS Server,” Argonne Technical Memorandum ANL/MCS-TM-248, 2001.
26. (with E. Dolan, R. Fourer, and J. Moré) “The NEOS Server for Optimization: Version 4 and Beyond,” Argonne Preprint ANL/MCS-P947-0202, 2002.

27. (with E. Dolan and J. Moré) “Benchmarking Optimization Software with COPS 3.0,” Argonne Technical Memorandum ANL/MCS-TM-273, 2004.
28. “Mesh Shape-Quality Optimization Using the Inverse Mean-Ratio Metric: Tetrahedral Proofs”, Argonne Technical Memorandum ANL/MCS-TM-275, 2004.