JOEL S. SOKOL

ASSISTANT PROFESSOR
SCHOOL OF INDUSTRIAL AND SYSTEMS ENGINEERNG
GEORGIA INSTITUTE OF TECHNOLOGY

I. EARNED DEGREES

Ph.D.	Massachusetts Institute of Technology (Operations Research)	June 1999
B.S.	Rutgers University (Applied Sciences in Engineering) Graduated #1 in class, 4.0 GPA	May 1994
B.A.	Rutgers University (Mathematics, Computer Science) Graduated #1 in class, 4.0 GPA	May 1994

II. EMPLOYMENT

Assistant Professor	Georgia Institute of Technology (Industrial and Systems Engineering) Affiliated faculty member: • Center for the Study of Systems Biology • Algorithms, Combinatorics, and Optimization • The Logistics Institute	1999 – present
Research Assistant	Massachusetts Institute of Technology (Operations Research Center)	1994 – 1999
Teaching Assistant	Massachusetts Institute of Technology (Sloan School of Management)	1996 – 1999
Applied Research Intern	Bellcore (Bell Communications Research)	1996 – 1997

III. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

i. Ph.D. Students Supervised

1. Jeff Day
   Co-advisor with G. Nemhauser
   Thesis Title: “An Inverse Optimization Approach to Railroad Block Impedances”
   Research supported by funding from Norfolk Southern Railroad
   Graduated May 2002
   Current Position: Schneider National

2. Dawn M. Strickland
   Co-advisor with E. Barnes
   Thesis Title: “Maximum Cliques with Application to Protein Structure Alignment”
   Graduated December 2002
   Current Position: Assistant Professor, Department of Mathematics, Winthrop University

3. Renee Butler
   Co-advisor with J. Ammons
   Thesis Title: “Supply Chain Design for New Products”
   Research supported by funding from Eastman Kodak
   Graduated August 2003
   Current Position: Assistant Professor, Department of Industrial Engineering, Southern Polytechnic University

4. Cheng-Huang Hung
   Thesis Title: “On the Inverse Shortest Path Problem”
   Graduated December 2003
   Current Position: Assistant Professor, Department of Management of Information Systems, National Taiwan University of Science and Technology

5. Maurice Garfinkel
   Co-advisor with G. Sharp
   Thesis Title: “An Optimization Approach to the Correlated Storage Problem”
   Graduated January 2005
   Current Position: Mathematician, BHPBilliton, Melbourne, Australia

6. Kendra Taylor
   Co-advisor with P. Griffin
   Thesis Title: “Auction Design and Participant Behavior in Sequential Auctions”
   Research supported by funding from the Institute for Paper Science and a Packard Fellowship
   Graduated August 2005
   Current Position: Consultant, Booz Allen Hamilton

7. Hyun-suk Yoon
   Thesis Title: “Optimization Methods for a Protein Folding Problem”
   Graduated December 2006
   Current Position: Operations Research Group, Norfolk Southern Railroad

8. Yetkin Ileri
   Co-advisor with G. Nemhauser
   Thesis Title: “Algorithms for Optimizing Online Drayage Problems”
   Research supported by funding from Schneider National
   Graduated December 2006
   Current Position: SAP

9. Amandeep Parmar
   Co-advisor with S. Ahmed
   Research supported by funding from National Science Foundation and Office of Naval Research
   Thesis Topic: Network Flow Problems With Equal-Split Restrictions
   Projected Graduation Date: May 2007
   Accepted Position: QRM

10. Lori Houghtalen

Co-advisor with O. Ergun
Thesis Topic: Carrier Collaboration in Air Cargo Logistics
Research supported byNational Science Foundation Fellowship
Projected Graduation Date: August 2007
Accepted Position: Assistant Professor, Department of Mathematical Sciences, Babson College

11. Yao-Hsuan Chen
Preliminary Thesis Topic: Network structure in epidemiology
Research supported by funding from National Science Foundation and Office of Naval Research
Projected Graduation Date: May 2008

12. Xing Wang
Co-advisor with E. Johnson
Preliminary Thesis Topic: NNLS methods with application to airline problems
Projected Graduation Date: May 2010

ii. Other Ph.D. Research Supervised (course number ISyE 8900 or ISyE 8901, usually for 3 credit hours)

13. Cheng-Huang Hung, "Toward Solving the HP-Lattice Model of Protein Folding," Spring 2001

14. Kai Huang, "The Inverse Shortest Path Length Problem" (with S. Ahmed), Summer 2001 – Summer 2002

15. Hyun-suk Yoon, "The Schoolbus Routing Problem," Summer 2001

16. Joe Hurley, "Multiple Pickup/Delivery Routing with Time Windows and Pool Points," Fall 2001

17. Yetkin Ileri, "Modeling Air Cargo Routing Decision Making" (with G. Nemhauser), Spring 2002

18. Hyun-suk Yoon, "Minimum 2-Digit Code Generators," Spring 2002

19. Martin Smith, "Contract Structure and Investment" (with S. Hackman), Summer 2002

20. Thomas Cooper, "Maximum Cliques and Protein Structure Alignment," Fall 2002

21. Doug Altner, "ADM Selection and Routing Algorithms," Fall 2003

22. Tsung-Lin Wu, "Lower Bounds for Maximum Cliques in CMO Graphs," Fall 2003

23. Monika Szymczak, "Optimization in Protein Structure Comparison," Summer 2004 – Spring 2005

24. Jose Antonio Carbajal, "General Network Optimization and Currency Arbitrage," Fall 2004 – Spring 2005

25. Clarence Wardell, "Mathematical Models of Affirmative Action Policies," Summer 2005

26. Jessica Heier, "Evacuation Models," Fall 2005 – Spring 2006

27. Gizem Keysan, "Problems in Trucking," Fall 2005

28. Shaudi Housseni, “Protein Structure Comparison,” Fall 2006

29. Steve Tyber, “Protein Structure Comparison,” Spring 2007

iii. Other Ph.D. Student Collaborations (collaborations generally more than one semester, resulting in publication(s))

30. I-Lin Wang, Multiple Pairs Shortest Path Algorithms and Multicommodity Flow (with E. Johnson)

31. Balaji Gopalakrishnan, Least Squares Algorithms for Network Flows (with E. Barnes, E. Johnson)

32. Justin Melvin, Models, Algorithms, and Data Structures for Solving Large-Scale CMO Instances (with C. Tovey)

iv. Master’s Theses Supervised

33. Katharina Baaman (School of Mathematics), “The Maximum Clique Problem – On Finding an Upper Bound with Application to Protein Structure Alignment” (co-advised with E. Barnes, P. Mucha), Summer 2003

34. Lloyd Zhilee Lim, “Production Scheduling for Improved Logistics,” Spring-Fall 2003

35. Yam Guan Goh, “Optimizing Supply Chain Logistics in China” (co-advised with Y. Wang), Spring-Fall 2003

36. Leng Siang Lee, “Analysis of the Competitive Strength of Asia-Pacific Logistics Hubs,” Spring-Fall 2004

37. Lily Suryana Indradjaja, “Network Design for Ericsson End-to-End Spare Parts Management System in Indonesia,” Spring-Fall 2004

38. Ramanathan Muthiah, “Designing an India-to-US Logistics System,” Spring 2007

v. Other M.S. Research Projects Supervised (course number ISyE 8900 or ISyE 8901, usually for 3 credit hours)

39. Christian Bezzi, “Constructing an Excel Model for Route Matching in Trucking,” Spring 2001

40. Nelman Sabillon, “The Logistics of Trucking,” Spring 2001

41. Rebeca Sandino, “Algorithms for Protein Contact Map Overlap Maximization,” Fall 2001 – Spring 2002 (This research led to her winning an NSF Graduate Fellowship.)

42. Anup Mehendale, “Automatic Data Collection Systems in Logistics” (with A. Kleywegt), Fall 2001

43. Siddharth Shah, “A Case Study in Automobile Spare Parts Distributuion” (with A. Kleywegt), Fall 2001 – Spring 2002

44. Anar Jafarov, “Notes in Deterministic Optimization,” Spring 2002

45. Yong Jung, Sameer Savant, “Optimization in Protein Folding,” Spring 2002

46. Devasia Karimpanal, Ashish Labroo, Karthik Lakshman, Rikta Nagrani, “Solving Logistics Problems in Java,” Spring 2002

47. Yolanda Alexander, Zahed Khan, Winny Leowarin, Oran Kittithreerapronchai, “Dynamic Programming Applied to Quiddler,” Summer 2002

48. Oliver Grimm, “Maximum Profit Cycle Covers for Air Cargo Scheduling,” Summer 2002

49. Sam Potter, “A Manual for Optimization Using AMPL,” Summer 2002 (The final writeup from this project has been used by faculty at Georgia Tech, Penn State, and Brigham Young University.)

50. LaKeya DeWalt, Shashank Gupta, Kim Thompson, “Maximum Profit Cycle Covers for Air Cargo Scheduling,” Fall 2002

51. Senthil Kumar Arumugam, Om Prakash Chellakkani, “Reverse-Engineering Protein Contact Maps,” Fall 2002

52. Garrett Cole, “Cycle Covers for Maximum Profit,” Spring 2003

53. Vikram Subramanian, “The Railroad Logistics Industry” (with A. Kleywegt), Spring 2003

54. Chanika Angchaisuksiri, Mo-Han Hsieh, “Multilane Product Optimization and Quiddler,” Spring 2003

55. Jenny Xiaomeng Yin, “The Chinese Postman Challenge,” Spring 2003

56. Joseph Harris, John Hong, Michael Manning, “Heterogeneous Self-Organizing Workers,” Summer 2003

57. Besarion Lordkaprinze, “A Study of Financial Optimization Software,” Summer 2004

58. Jud Savelle, “Collaboration by Passenger Airlines,” Summer 2004

59. Marcia Archibald, “Optimizing Congressional Districts,” Spring 2005

60. Sebastian Ruther, “Online and Offline Algorithms for Dumpster Pickup and Dropoff Problems,” Summer 2005

61. Arvind Ganesan, Neel Garg, Joo-Young Kim, “Optimization Models for Nonpartisan Congressional Districting,” Spring 2006

62. Ashley Messer, “Optimal Usage of Cramer’s Stock Picks,” Spring 2007

63. Juan Carlos Guzman, “Sudoku as an Optimization Problem,” QCF Day poster, Spring 2007

vi. Undergraduate Research Projects Supervised (course number ISyE 4699 or ISyE 4991, usually for 3 credit hours)

64. Meeti Shah, “The Logistics of Trucking,” Spring 2001

65. Joseph Harris, “An Interactive Traveling Salesman Learning Tool,” Summer 2001

66. Robby Espinoza, “Multiple Pickup/Delivery Routing with Time Windows and Pool Points,” Fall 2001

67. Dimitris Athanassopoulos, “The Contact Map Overlap Problem in Protein Comparison,” Spring 2002

68. Keisha Carter, “Scheduling Boarding and De-icing at Airports,” Spring 2002

69. Alicia Patrick, “Valid Inequalities for Coloring Extension LP’s,” Summer 2002

70. Eric Orrington, Nadya Ramel, “A Scientific Visualization Tool for Protein Structure Alignment” (with E. Barnes), Summer 2002 (This research was selected for presentation at the National Society of Black Engineers conference.)

71. Alicia Patrick, “Reverse-Engineering Protein Contact Maps,” Fall 2002

72. Eric Orrington, Nadya Ramel, “Topics in Discrete Mathematics” (with E. Barnes), Fall 2002

73. Yao-Hsuan Chen, “Linear and Network Optimization,” Fall 2002

74. Candy Leung, Daniel Mo, “Hard and Stochastic Versions of Basic Logistics Models,” Spring 2003

75. Juan Martinez, “The Facility Location Challenge,” Spring 2003

76. Eric Orrington, Nadya Ramel, “A Visualization Tool for Branch-and-Bound” (with E. Barnes), Spring 2003

77. Javier Estrella, “Topics in Optimization,” Spring 2003

78. Holly Matera, Jared Norton, Katie Whitehead, “A Probability-Based Model of NCAA Basketball,” Summer 2003

79. Nikhil Chaturvedi, “Model Selection in ISyE,” Summer 2003

80. Daphne Lai, “Efficient Transportation Simplex Code in Excel,” Summer 2003

81. Sebastian Urbina, “Nonlinear Optimization Models in Finance” (with F. Al-Khayyal), Fall 2003

82. Peter Choi, David Dirring, “Analyzing a Self-Organizing System Using Simulation,” Spring 2004

83. Urvi Kapadia, “A Dynamic Programming Model for Strategic Polling,” Spring 2004

84. Ty Walker, “Collaboration by Passenger Airlines,” Summer 2004

85. Vernet Lasadro, “A Two-Stage Probabilistic Model for Pitcher Success,” Fall 2004

86. Dara Thach, “Regression Models for Predicting NCAA Point Spreads,” Spring 2005

87. Pete Kriengsiri, “A Dynamic Programming Model for NCAA Tournament Prediction,” Spring 2005

88. Stephen Grimm, “Optimization Models for Catching Money Launderers,” Summer 2005

89. David Rheault, “Models for Optimizing Lottery Payouts,” Summer 2005

90. Nakul Aggarwal, Osman Chaudhry, Chee-Siang Lau, Viktoria Rachkova, “Heuristics for On-Line Dumpster Pickup and Dropoff Problems,” Fall 2005

91. Kristine Johnson, “Predicting NCAA Basketball Margins of Victory Using the LRMC Model,” Fall 2005 – Spring 2006

92. Chuck Kahng, “Optimization Models for Nonpartisan Congressional Districting,” Spring 2006

93. Raghav Himatsingka, “Modeling and Analysis of Affirmative Action Policies,” Spring 2006

94. Montoya Trice, “Mathematical Models for NCAA Football Prediction,” Summer 2006

95. Brett Fletcher, “Stochastic Modeling in Baseball,” Fall 2006

96. Scott Lampert, “Stochastic and Statistical Models for Finding Player ‘Slopes’,” Summer 2006 – Fall 2006

97. Kristine Johnson, “Pivoting Methods in Simplex,” Fall 2006

98. Manik Jain, “Models of Cognitive Decision-Making,” Spring 2007

vii. Readings Courses Supervised

99. Kenda Armstrong (M.S.), “HP-Lattice Protein Folding,” Spring 2000

100. Jane Burkett (M.S.), “HP-Lattice Protein Folding,” Summer 2000

101. Anthony Hillman (Ph.D.), Cindy Rim (M.S.), “Computational Optimization,” Spring 2002

102. Rebeca Sandino (Ph.D.), “Primal-Dual Algorithms,” Fall 2002

103. Gonzalo Cordova (Ph.D.), “How to Read and Do Proofs,” Summer 2003

104. Marcia Archibald (Ph.D.), “Readings in Optimization,” Fall 2003

105. Soonhui Lee (M.S.), “Network Optimization,” Spring 2004

106. Marcia Archibald (Ph.D.), “How to Read and Do Proofs,” Spring 2004

107. Gonzalo Cordova (Ph.D.), “Readings in Analysis,” Summer 2004

108. Viktoriya Rachkova (Ph.D.), “C/CPLEX Interface Programming for Optimization Research,” Fall 2006

B. OTHER TEACHING ACTIVITIES

1. Curriculum Design: As chair of ISyE Undergraduate Committee, helped spearhead major revisions to the curriculum that allow students to achieve more depth and coherence in

one or more areas of specific interest to them, while maintaining adequate breadth across the whole ISyE discipline. The new curriculum received favorable feedback from ISyE alumni, faculty, and students.

2. New Course Development: Honors Operations Research Modeling (undergraduate honors topics course). Developed mathematical modeling course and premiered it in Spring 2005. The goal of the course is to teach engineering students to become more proficient and more comfortable creating and using mathematical models in their analyses.

3. Communications Instruction. ISyE workplace communications initiative to train students in business communications, including writing and presentation skills. Instruction is integrated into ISyE 4104/5, Senior Design. This work has also lead to the publication of a book chapter and a paper. (With F. Al-Khayyal, J. Norback)

4. New Course Development: Financial Optimization (elective in the Master's program in Quantitative and Computational Finance, jointly administered by ISyE, Math, and Management). Created course syllabus, lecture materials, projects, etc. for ISyE 6673. (With S. Ahmed, F. Al-Khayyal, E. Barnes, S. Deng, S. Hackman)

5. Laboratory Material Development for ISyE 3101 (now 3103), Introduction to Supply Chain Modeling: Logistics, and ISyE 6203, Transportation and Supply Chain Systems. Developed and created complete set of laboratory materials, including many with significant computer-based and web-based components. The laboratory component was eliminated from the undergraduate course after Fall 2001; many subsequent instructors have used the materials as student projects in ISyE 3103, ISyE 6203, ISyE 4231, and ISyE 6669**.** Materials will also be used this year in MIT's Sloan School of Management.

6. On-line Tutorial Design. Created multimedia web-based linear and integer programming tutorial, including instructional material. (With K. Croxton, T.L. Magnanti, Y. Wang)

7. Educational Software Development. Designed interactive capacitated network design and traveling salesman problem applications. (With K. Croxton, T.L. Magnanti, Y. Wang) Recently was sole supervisor of the creation of an updated and improved version.

8. New Course Development: COE 1361, Computing for Engineers. Created lecture and project material for College of Engineering pilot course.

9. AMPL Tutorial. Supervised the development of an AMPL tutorial for introductory optimization students. The tutorial is now in use at Georgia Tech (ISyE 6201, ISyE 4231, ISyE 6669), Penn State (BA 512, BA 544), and Brigham Young University (MBA 530, MBA 531).

10. Senior Design Reorganization. Assisted S. Hackman and P. Griffin with redesign of undergraduate capstone course to raise standards and improve the educational experience.

IV. SCHOLARLY ACCOMPLISHMENTS

A. REFEREED PUBLICATIONS AND BOOKS

i. Published/Accepted for Publication

Peer Reviewed Archival Journals

1. "Virtual Path Design in Service-Specific ATM Networks," *Journal of Heuristics* **6** (2000), pp. 65-83. (With I. Saniee)

2. "Telecommunication Link Restoration Planning with Multiple Facility Types," *Annals of Operations Research* **106** (2001), pp. 127-154. (With A. Balakrishnan, T.L. Magnanti, Y. Wang)

3. "Spare Capacity Assignment for Line Restoration Using a Single Facility Type," *Operations Research* **50** (2002), pp. 617-635. (With A. Balakrishnan, T.L. Magnanti, Y. Wang)

4. "Management of Railroad Impedances for Shortest Path-based Routing," *Electronic Notes in Theoretical Computer Science* **66** (2002). (With J. Day, G.L. Nemhauser)

5. "A Robust Heuristic for Batting Order Optimization Under Uncertainty," *Journal of Heuristics* **9** (2003), pp. 353-370.

6. "Teaching Statistics With Sports Examples," *Informs Transactions on Education* **5** (2004), pp. 75-86. (With P.H. Kvam)

7. "An Intuitive Markov Chain Lesson From Baseball," *Informs Transactions on Education* **5** (2004), pp. 47-55.

8. "Optimal Protein Structure Alignment Using Maximum Cliques," *Operations Research* 53 (2005), pp. 389-402. (With D.M. Strickland, E. Barnes)

9. "A Multiple Pairs Shortest Path Algorithm," *Transportation Science* 39 (2005), pp. 465-476. (With I-L. Wang, E.L. Johnson)

10. "Short Term Booking of Air Cargo Space," *European Journal of Operational Research* 190 (2006), pp. 1979-1990. (With E-P. Chew, H-C. Huang, E.L. Johnson, C-H. Leong, G.L. Nemhauser) [This paper has been cited in the United Nations' Bulletin of the World Health Organization, volume 84 (2006).]

11. "Planning the Supply Chain Network for New Products: A Case Study," *Engineering Management Journal* 18 (2006), pp. 35-43. (With R.J. Butler, J.C. Ammons)

12. "An Optimization Approach for Planning Daily Drayage Operations," *Central European Journal of Operational Research* 14 (2006), pp. 141-156. (With Y. Ileri, M. Bazaraa, T. Gifford, G. Nemhauser, E. Wikum)

13. "A Logistic Regression/Markov Chain Model for College Basketball Rankings," *Naval Research Logistics* 53 (2006), pp. 788-803. (With P.H. Kvam)

<u>Peer Reviewed Conference Proceedings</u>

14. "An Optimization Approach to the Correlated Storage Assignment Problem," *Proceedings of the 12th Annual Industrial Engineering Research Conference* (2003). (With M. Garfinkel, G. Sharp)

15. "Heuristics for the Correlated Storage Assignment Problem," *Proceedings of the 13th Annual Industrial Engineering Research Conference* (2004). (With M. Garfinkel, G. Sharp)

16. "Engineering Workplace Communication," *Proceedings of the 2004 American Society of Engineering Education Annual Conference and Exposition* (2004). (With J.S. Norback, P.J. McGuire, G.A. Forehand)

17. "General Adoption Model and Cultivation Effect," *Proceedings of the 36th International Conference on Computers and Industrial Engineering* (2006). (With T-X. Wu, D. Goldsman, C. Tovey)

18. "Minimizing Multi-zone Orders in the Correlated Storage Assignment Problem," *Proceedings of the International Material Handling Research Colloquium* (2006). (With M. Garfinkel, G. Sharp)

Peer Reviewed Industry Journals

19. "Data Analysis and Market Dynamics in Timber Procurement," *Journal of Applied Analytics in Consulting* (2005). (With P. Griffin, K.C. Taylor)

ii. Submitted

20. "Modeling Automobile Paint Blocking: A Time Window Traveling Salesman Problem," in revision after submission to *Operations Research* (With T.L. Magnanti), Working Paper TLI-03-03

21. "A Least-Squares Network Flow Algorithm," in revision after submission to *Mathematical Programming* (With B. Gopalakrishnan, S. Kong, E. Barnes, E.L. Johnson)

22. "A Strategic Production and Distribution Model for Financial Viability in New Product Supply Chains," in revision after submission to *IIE Transactions* (With R.J. Butler, J.C. Ammons)

23. "Finding Optimal Solutions to Large CMO Instances" (with J. Melvin, C. Tovey), in revision after submission to *INFORMS Journal on Computing*

24. "Solving the Inverse Shortest Path Length Problem for Bandwidth Pricing" (With C-H. Hung, S. Ahmed, O. Ergun), in revision after submission to *Naval Research Logistics*

iii. In Preparation

25. "A Combined-Objective Least-Squares Method for Solving Linear Programming Problems" (With E. Barnes, B. Gopalakrishnan, E. Johnson); based on chapter(s) from B. Gopalakrishnan's Ph.D. thesis completed 2002

26. "Modeling and Solving the ADM Selection and Routing Problem" (With A. Balakrishnan, T.L. Magnanti)

27. "A New Linear Programming Approach to Maximum Cliques" (With K. Baaman, E.R. Barnes); based on chapter(s) from K. Baaman's M.S. thesis completed 2003

28. "A Robust Optimization Approach for Strategic Production and Distribution Planning for a New Product" (With R.J. Butler, J.C. Ammons); based on chapter(s) from R. Butler's Ph.D. thesis completed 2003

29. "On Implementation of New Multiple Pairs Shortest Path Algorithms" (With I-L. Wang, E.L. Johnson), Technical Report NCKU-IIM-001; based on chapter(s) from I-L. Wang's Ph.D. thesis completed 2003

iv. Book Chapters

30. "Engineering Workplace Communication," in *Introduction to Engineering Through Case Studies*, P.K. Raju, C. Sankar, eds. (2003). (With J.S. Norback, P. McGuire, G. Forehand)

B. OTHER PUBLICATIONS

31. "The Asia Pacific Air Cargo System," TLI-AP White Paper (2001). (With M. Bazaraa, E.P. Chew, H.C. Huang, J.D. Hurley, E.L. Johnson, I. Mok, G.L. Nemhauser, K.C. Tan, C.P. Teo, I-L. Wang)

32. "Issues in Education," *OR/MS Today* January 2004.

33. "The ~~Traveling~~ Teaching Salesperson Problem," *OR/MS Today*, March 2005.

34. "Teaching OR Modeling," *OR/MS Today*, December 2005.

35. "Testing Ourselves," *OR/MS Today*, October 2006.

C. PRESENTATIONS

i. Invited Presentations

1. "The LRMC Method for NCAA Tournament Selection and Seeding," presented to Greg Shaheen, NCAA Senior Vice President for Basketball and Business Strategies, October 2006

2. "The LRMC Method for NCAA Tournament Selection and Seeding," Atlantic Coast Conference Basketball Subcommittee Meeting, Greensboro, NC, August 2006

3. "The Future of Industrial Engineering," Instituto Tecnologico y de Estudios Superiores de Monterrey-Toluca, Toluca, Mexico, November 2005

4. "Beating the Brackets," INFORMS conference, San Francisco, CA, November 2005

5. "A Markov Chain/Logistic Regression Model for Predicting NCAA Basketball Outcomes," Winthrop University Department of Mathematics, March 2005

6. "A Markov Chain/Logistic Regression Model for Predicting NCAA Basketball Outcomes," INFORMS conference, Denver, CO, October 2004

7. "Inverse Optimization for Network Pricing," INSEAD Singapore Campus, June 2004

8. "Heuristics for the Correlated Storage Assignment Problem," National University of Singapore (joint Industrial & Systems Engineering/TLI-AP seminar), June 2004

9. "Heuristics for the Correlated Storage Assignment Problem," University of Auckland Department of Engineering Science, May 2004

10. "Designing Robust Supply Chains for New Products," Lucent Technologies, Murray Hill, NJ, May 2004

11. “Optimal Protein Structure Alignment Using Maximum Cliques,” National University of Singapore (joint Industrial & Systems Engineering/TLI-AP seminar), March 2004

12. “Sorry, Yogi: Good Pitching Does Beat Good Hitting,” INFORMS conference, Atlanta, GA, October 2003

13. “Maximum Cliques and Protein Structure Alignment,” University of Michigan Department of Industrial and Operations Engineering seminar series, January 2003

14. “Inverse Shortest Path Length Problems,” INFORMS conference, San Jose, CA, November 2002

15. “Management of Railroad Impedances for Shortest Path-Based Routing,” INFORMS conference, San Jose, CA, November 2002

16. “ADM Selection and Routing in Ring Networks,” INFORMS conference, Miami, FL, November 2001

17. “Air Cargo Load and Allocation Issues,” INFORMS conference, Miami, FL, November 2001

18. “The Distance-Specific Inverse Multicommodity Flow Problem,” INFORMS conference, Miami, FL, November 2001

19. “A Cutting-Plane Algorithm for HP-Lattice Protein Folding,” INFORMS international conference, Maui, HI, June 2001

20. “Coordinating Air Cargo Allocation Requests for HP in Singapore,” TLI Leaders in Logistics meeting, Atlanta, GA, May 2001

21. “Optimizing Paint Blocking in Automobile Assembly,” National University of Singapore, September 2000

22. “An Inverse Optimization Algorithm for Calibrating Railroad Block Impedances,” International Symposium on Mathematical Programming, Atlanta, GA, August 2000

23. “Optimizing Paint Blocking in an Automobile Assembly Line: An Application of Specialized TSPs,” INFORMS conference, Philadelphia, PA, October 1999; also presented at several universities, Winter 1999-2000

24. “Actual and Potential Runs in Batting Order Optimization,” RAND Corporation, February 1999

25. “Telecommunications: From Backbone to Back Door,” California State University – Long Beach, Long Beach, CA, January 1999

26. “Design of Virtual Paths in ATM Networks,” INFORMS conference, San Diego, CA, May 1997

ii. Peer-Reviewed Presentations

27. “Management of Railroad Impedances for Shortest Path-based Routing,” ATMOS workshop, Malaga, Spain, July 2002

iii. Contributed Presentations

28. "A Process Approach to Batting Order Under Uncertainty," INFORMS conference, Salt Lake City, UT, May 2000

29. "Painting Cars and the TSP," INFORMS conference, Seattle, WA, October 1998

E. TELEVISION, RADIO, INTERNET, AND PRINT MEDIA APPEARANCES

i. Personal appearances

1. Fox5 News, March 24, 2004. Gave expert predictions based on logistic regression/Markov chain model of college basketball; predictions were correct.

2. WGCL 46 (CBS) News, March 31, 2004. Gave expert predictions based on logistic regression/Markov chain model of college basketball; predictions were correct.

3. WGCL (CBS) Final Four Preview Show, April 2, 2004. Predictions from March 31 repeated.

4. WSB AM 750 (Atlanta) Final Four Preview, April 2, 2004. Televised predictions from March 31 repeated.

5. WGCL 46 (CBS) News, April 5, 2004. Gave expert predictions based on logistic regression/Markov chain model of college basketball; predictions were correct.

6. *Atlanta Life Magazine*, January 2007. "March Madness: How to pick your college basketball bracket".

7. *Atlanta Life Magazine*, February 2007. "March Madness: Part II – Sound strategies for picking top teams".

8. KOA AM 850 (Denver), March 14, 2007. Interviewed live regarding LRMC model.

ii. Mentions in the media

9. Newhouse News Service. Logistic regression/Markov chain model of college basketball quoted in March 8, 2006 article; Newhouse's network of newspapers has a combined subscription of more than 2,000,000.

10. *Engineering Enterprises*, Spring 2006, p. 13-16. Four-page article devoted to logistic regression/Markov chain model of college basketball.

11. *New York Times Play Magazine*, March 2007. In "The Gamblers: 1+2=5".

12. *Star Ledger*, March 8, 2007. In "Biz Buzz: NCAA tournament a good bet in the office".

13. *Atlanta Journal-Constitution*, March 12, 2007. Featured article: "Tech professors make their NCAA picks".

14. *ESPN.com*, March 14, 2007. One of four featured stories ("The Smartest Touts in the Land") in BracketNation,http://sports.espn.go.com/espn/eticket/story?page=bracketnation

15. *San Jose Mercury News*, March 15, 2007. One of two mini-stories in "Unlocking pool puzzles", with more detail in the accompanying Morning Buzz ("NCAA tournament: New entrant in computer-geek fray").

16. *USA Today.com*, March 15, 2007. One of the stories on the Bracket Racket page.

17. www.isye.gatech.edu/~jsokol/lrmc : ISyE-hosted LRMC web site received over 100,000 page views in the first two weeks after the NCAA tournament field was announced. Rankings were also used by NCAA tournament selection committee.

V. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

i. Professional Positions

1. Associate Editor, *INFORMS Transactions on Education*
2. Associate Editor, *INFORMS Journal on Computing* special issue on OR models in music
3. Vice-chair for Programs, INFORMS OR in Sports Subdivision, 2004 – present
4. Editor, *OR/MS Today* "Issues in Education" column, Oct. 2003 – present
5. Chair, INFORMS Student Affairs Committee, 2005 – present; committee member since 2003
6. Invited Sessions Chair, INFORMS 2003 General Meeting
7. Co-founder, INFORMS Junior Faculty Interest Group, 2002
8. INFORMS Subcommittee on Student Chapters, 1999 – 2002
9. Local Committee, International Symposium on Mathematical Programming, 2000
10. Referee for *Operations Research, INFORMS Journal on Computing, Networks, Telecommunications Systems, Naval Logistics Quarterly, Annals of Operations Research, Operations Research Letters, Transportation Science, European Journal of Operational Research, Asia-Pacific Journal of Operational Research, Journal of Quantitative Sports Analysis*
11. Proposal reviewer for Research Council of Norway, Comprehensive Logistics Institute of Kansas

ii. Professional Society Memberships

1. Institute for Operations Research and Management Science (INFORMS)
2. Mathematical Programming Society
3. INFORMS Optimization, Logistics, and OR in Sports Subdivisions
4. INFORM-ED
5. INFORMS Junior Faculty Interest Group
6. Tau Beta Pi
7. Golden Key

B. CAMPUS CONTRIBUTIONS

i. Departmental Activities

1. QCF (Quantitative and Computational Finance) Executive Committee, Summer 2006 – present
2. ISyE Undergraduate Committee, Fall 2002 – 2006; Chair, Fall 2003 – 2005.
3. ISyE Information Technology Committee, Fall 2004 – 2006
4. College of Engineering Freshman Mentoring Program, 2001 – 2002
5. ISyE Comprehensive Examination Committee (Optimization), Spring 2000 – Spring 2001 and Fall 2002 – Spring 2003
6. ISyE Space Planning Committee, Spring 2001 – Fall 2003
7. Coordinator, MIT Operations Research Center Seminar Series, Spring 1997

8. President, MIT Operations Research Center Student INFORMS Chapter, Fall 1996 – Spring 1997
9. MIT Operations Research Center Unix/Linux Workstation Administrator, Spring 1996 – Spring 1999

ii. Doctoral Thesis Committees

1. Luis Gonzalez (Mathematics), 2000
2. Jill Hardin, 2001
3. Lisa Evans, 2002
4. Milind Sohoni, 2002
5. Balaji Gopalakrishnan, 2002
6. Kelly Easton, 2002
7. Jeff Weir, 2002
8. I-Lin Wang, 2003
9. Haijun Shen (Aerospace Engineering), 2003
10. Stephen Mulva (Civil Engineering), 2004
11. Maciek Nowak, 2005
12. Yong-Hee Han, 2005
13. Kai Huang, 2005
14. Christina Robinson Scherrer, 2005
15. Hee Jung Sim, 2005
16. Manuel Gonzalez (Instituto Tecnologico y des Estudios Superiores de Monterrey), 2005
17. Yen-Tai Wan, 2006
18. Seunghyun Kong, 2007
19. Aang Daniel, 2007
20. Marti Roper (Virginia Tech), Expected 2009

iii. Other Activities

1. Broadening Subcommittee, Provost's Taskforce on Undergraduate Education, Spring 2007 – present
2. Georgia Tech Faculty Honors Committee, Fall 2007 – present
3. Georgia Tech Leadership RoundTable (inaugural member)
4. Georgia Tech Executive Round Table (ERT), 2003 – present; Board of Directors, 2005 – present
5. Faculty advisor, Georgia Tech Chess Club, 2004 – present
6. Faculty advisor, Jewish Student Union, 2004 – present
7. Member, Freshman Summer Reading Program Committee, 2006 and 2007
8. Georgia Tech Graduate Student Symposium Faculty Judge, 2007
9. Organized Ph.D. seminar on combinatorial auctions, 2002 (With O. Ergun, P. Keskinocak)
10. Director, MIT Marching Band, 1996 – 1998
11. Taught IAP Workshop "Mathematics and Baseball," 1995

C. OTHER CONTRIBUTIONS

1. Consultant, The Conrad Group, 2000 – 2001
2. Consultant, SP Newsprint, 2001
3. Consultant, Hartsfield International Airport, 2001
4. Consultant, NatureWorks LLC, 2005

VI. GRANTS AND CONTRACTS

A. AS PRINCIPAL AND CO-PRINCIPAL INVESTIGATOR

i. Awarded

1. "The Asia Pacific Air Cargo System," TLI-AP, $673,660 over 4 years, 2000-2004 (With J. Banks (1 year), O. Ergun (2 years), E.L. Johnson, G.L. Nemhauser (1 year)); funding included a total of 6.5 months of my summer support

2. "Developing a Backhaul Load-Matching Tool," Ryder Logistics Network, $5,549, 2000-2001; funding used to support my research student

3. "Railroad Impedance Calibration and Absolute Candidate Elimination," Norfolk Southern Railroad (TLI Leader in Logistics), $50,000 per year for 2 years, 2000-2001 (With G.L. Nemhauser); funding was used to support for our co-advised Ph.D. student for 2 years (I did not require additional summer funding during these two years)

4. "Adaptable Supply Chain Design for Product Spin-Offs," Eastman Kodak (TLI Leader in Logistics), $50,000 per year for 2 years, 2001-2003 (With J. Ammons); funding was used to support for our co-advised Ph.D. student for 2 years, and ½ month of my summer support

5. "Optimizing Drayage Operations," Schneider National, $376,000 over 3 years, 2003-2005 (With M. Bazaraa, G.L. Nemhauser); funding included my summer support (2.75 months), support for one co-advised Ph.D. students (3 years), and support for one of my solely-advised Ph.D. students (1 year)

6. "Network Analysis Using Inverse Optimization," Office of Naval Research, $100,000, 2005-2006 (with S. Ahmed); funding includes my summer support (1 month) and support for two co-advised Ph.D. students

7. "Network Analysis Using Inverse Optimization," National Science Foundation, $120,000 over 2 years, 2005-2007 (with S. Ahmed); funding includes my summer support (1.5 months) and support for two co-advised Ph.D. students

ii. Pending

1. "Transportation Network Analysis Using Inverse Optimal Value Problems," Transportation Research Center, $30,000 (with S. Ahmed); proposal was accepted but funding has not yet arrived

VII. HONORS AND AWARDS

i. Academic

1. Apple Award (institute-wide), 2007
2. Finalist for Joseph French Johnston Award for integrating real-world experiences into class (institute-wide), 2007
3. Women in Engineering Faculty Award for Excellence in Teaching (college-wide), 2007
4. ISyE Favorite Professor, 2006
5. Most Intellectual Professor (Up with the White and Gold Awards), 2006
6. Alpha Kappa Psi faculty initiate, 2006
7. Finalist for inaugural Joseph French Johnston Award for integrating real world experiences into class (institute-wide), 2006
8. Senior design advisee group won Best ISyE Senior Design Project, Fall 2006

9. CETL/BP Junior Faculty Teaching Excellence Award (institute-wide), 2006
10. ANAK Award, 2005 (institute-wide; first junior faculty winner since 1942)
11. Senior design advisee group won Best ISyE Senior Design Project, Fall 2005
12. Omicron Delta Kappa faculty initiate, 2005
13. ISyE Outstanding Professor, 2001
14. Alpha Kappa Psi Outstanding Professor, 2000, 2002 (one of several)
15. National Science Foundation Graduate Research Fellowship, 1994 – 1997
16. INFORMS Doctoral Colloquium, 1999
17. Rutgers University Outstanding Engineering Scholar (4.0 GPA), 1994

ii. Non-academic

1. Sudler Award (with Atlanta Wind Symphony), 2003
2. DCA Senior Drum and Bugle Corps World Champion (with Hawthorne Caballeros), 1995
3. NACDA/Sears Directors' Cup Postgraduate Scholarship (National Collegiate Scholar/Band Member of the Year), 1994

SUMMARY OF INSTRUCTION OPINION SURVEY
JOEL S. SOKOL

I. UNDERGRADUATE COURSES

Semester/ Year	Course Number/Name	# of Students	# of Responses	Teaching Effectiveness (max=5.0)
Fall 1999	4231B Engineering Optimization	15	9	4.9
Spring 2000	3101A Supply Chain Modeling: Logistics	65	26	4.9
Fall 2000	3101A Supply Chain Modeling: Logistics	70	41	4.9
Spring 2002	COE 1361A Computing for Engineers	36	13	4.6
Fall 2002	4104B Senior Design I	39	8	4.5
Fall 2002	3103B Supply Chain Modeling: Logistics	35	11	4.9
Spring 2003	4105B Senior Design II	39	16	4.8
Fall 2003	4104A Senior Design I	34	14	4.8
Spring 2004	4105A Senior Design II	34	11	4.6
Summer 2004	3103RHK Supply Chain Modeling: Logistics	33	11	4.9
Fall 2004	4331A Honors Optimization	17	8	5.0
Fall 2004	4231A Engineering Optimization	71	27	4.9
Spring 2005	4833A Honors Topics in OR Modeling	8	3	5.0
Summer 2005	3103A Supply Chain Modeling: Logistics	42	10	4.8
Fall 2005	4106A Senior Design	24	12	4.8
Spring 2006	3133A&C Engineering Optimization	94	43	4.8
Fall 2006	4106B&C Senior Design	22	6	5.0
	Undergraduate Average	40	16	4.8

II. GRADUATE COURSES

Semester/ Year	Course Number/Name	# of Students	# of Responses	Teaching Effectiveness (max=5.0)
Spring 2001	6662A Optimization II	29	12	4.9
Fall 2001	6669A Deterministic Optimization	64	38	4.9
Spring 2004	6673A Financial Optimization	33	15	4.9

Fall 2006	6673A Financial Optimization	32	22	4.9
	Graduate Average	40	22	4.9