

January 11, 2018

GEORGE L. NEMHAUSER
Institute Professor/Chandler Chair
School of Industrial and Systems Engineering

I. EARNED DEGREES

1958 B. Ch.E. - City College of New York
1959 M.S. - Northwestern University
1961 Ph.D. - Northwestern University

II. EMPLOYMENT

Permanent:

Institute Professor and Chandler Chair, School of Industrial and Systems Engineering, 1985-present
Professor, School of Operations Research and Industrial Engineering, Cornell University, 1969-1985; Acting Chairman, 1973-1974; Director, 1977-1983
Associate Professor, Department of Operations Research and Industrial Engineering, The Johns Hopkins University, 1965-1969
Assistant Professor, Department of Operations Research and Industrial Engineering, The Johns Hopkins University, 1961-1965

Temporary:

Visiting Professor, Fall 1995, University of Melbourne, Melbourne, Australia
Research Director, 1975-1977, Visiting Research Professor, 1969-1970, 1983-1984, Center of Operations Research and Econometrics, University of Louvain, Belgium
Visiting Research Associate, Department of Statistics, Oregon State University, Summer 1967
Visiting Lecturer, Industrial Management Division, University of Leeds, Leeds, U.K., 1963-1964

III. TEACHING

A. Individual Student Guidance

Ph.D. STUDENTS SUPERVISED

1961-69 Johns Hopkins (11)

W.W. Hardgrave (George Washington University) -retired
H.E. Bradley (Shaklee Corporation) - retired
M.E. Thomas (Georgia Tech) - retired
Z. Ulmann
G.T. Howard (U.S. Naval Postgraduate School) -retired
H. Nuttle (North Carolina State University) - retired
D. Eklof (Eklof and Associates)
R. Garfinkel (University of Connecticut) - retired
W. Widhelm (University of Maryland) - deceased

V.J. Bowman
S.C. Frey, Jr. (University of Virginia)

1970-85 Cornell (15)

L.E. Trotter, Jr. (Cornell University) -retired
J. Fergusson (Bell Northern Research Labs) - retired
D. Merchant (deceased)
P. Dejax (University of Nantes)
M. Ball (University of Maryland)
G. Weber (Christopher Newport College)
G. Cornuejols (Carnegie-Mellon University)
W. Hsu (Taiwan National Academy)
Y. Ikura (Private Consultant)
G. Chang (Taiwan University)
R. Aboudi (University of Miami)
V. Masch (Bears-Sterns, Inc.)
R. Rushmeier (Level3 Communications)
G. Sigismondi (TNT Traco s.p.a.)
S. Park (Korean Institute of Science and Technology)

1985-2017 Georgia Tech (43)

H. Lee (Korea Telecom)
A. Mehrotra (University of Miami)
P.H. Vance (AXIOMA)
E. Wikum (Schneider)
J. Zhu
Z. Gu (Gurobi)
L. Lettowsky (Sabre)
Y. Wang (SAS)
I. deFarias (Texas Tech)
D. Cao (Dollar Car Rental)
D. Adelman (University of Chicago)
G. Glockner (Gurobi)
A. Atamturk (University of California, Berkeley)
D. Klabjan (Northwestern)
A. Miller (UPS)
A. Schaefer (Rice University)
M. Puttlitz (i2, Germany)
J. Hardin (Northwestern)
J. Rosenberger (University of Texas at Arlington)
J-P. Richard (University of Florida)
Kelly Easton (Sports Scheduling Group)
Jeff Day (SAS)
Dieter Vandenbussche (AXIOMA)
Ahmet Keha (ExxonMobil)
Yongpei Guan (University of Florida)
Yetkin Ileri (SAP)
James Luedtke (University of Wisconsin)
Faram Engineer (SK Innovation)
Renan Garcia (Gurobi)
Juan Pablo Vielma (MIT)
Michael Hewitt (Loyola Univ. Chicago)
Gizem Keysan (United Airlines)

A. Toriello (Georgia Tech)
Byungsoo Na (Korea University)
Dimitri Papageorgiou (Exxon Mobil)
Steve Tyber (General Electric)
Yaxian Li (United Airlines)
Qie He (University of Minnesota)
Kelly Bartlett
Chengliang Zhang (Amazon)
Junho Lee (Amazon)
Ezgi Karabulut (RPI)
Lluís Munguia

Current (6)

Rodolfo Carvajal
Edward He
Matias Sandoval
Elias Khahil

Post Docs Supervised (14)

Martin Savelsbergh (Georgia Tech)
Ram Pandit
Natasha Boland (Georgia Tech)
Petra Bauer (Siemens, Munich, Germany)
Eva Lee (Georgia Tech)
Emilie Danna (Google)
Bram Verweij (OM Partners, Antwerp, Belgium)
Menal Guzeloy (SAS)
Armin Fugenschuh (Helmut-Schmidt University, Hamburg, Germany)
Pierre Le Bodic (Monash University, Australia)
Merve Bodur (University of Toronto)
Avinash Bhardwaj (CORE, University of Louvain, Belgium)
Carlos Andrade (AT&T)
Hossein Hashemi (current)

B. Other Teaching Activities

Developed optimization sequence for Ph.D. students: 6661, 6662

IV. SCHOLARLY ACCOMPLISHMENTS

A. Published Books and Parts of Books

Introduction to Dynamic Programming, Wiley, 1966
Integer Programming, Wiley, 1972, (with R.S. Garfinkel)
Studies in Integer Programming, North-Holland, 1977 (co-edited with P.L. Hammer, E.L. Johnson and B. Korte)
Integer and Combinatorial Optimization, Wiley, 1988, (with L.A. Wolsey)
(Recipient of Lanchester Prize, 1990)
Optimization: Volume 1 of Handbooks in Operations Research and Management Science, Elsevier, 1989 (co-edited with A.H.G. Rinnooy Kan and M.J. Todd)

Network Models: Volume 7 of Handbooks in Operations Research and Management Science, Elsevier, 1995 (co-edited with M.O. Ball, T.L. Magnanti, and C.L. Monma)
Network Routing: Volume 8 of Handbooks in Operations Research and Management Science, Elsevier, 1995 (co-edited with M.O. Ball, T.L. Magnanti, and C.L. Monma)
Integer Programming and Combinatorial Optimization: 10th International IPCO Conference, Springer, 2004 (co-edited with D. Bienstock)
Discrete Optimization: Volume 12 of Handbooks in Operations Research and Management Science, Elsevier, 2005 (co-edited with Karen Aardal and Robert Weismantel)

B. Refereed Publications

Published

"A Short Table of Z-Transforms and Generating Functions," Operations Research 9, 575-578 (1961), (with C. Beightler and L. G. Mitten).

"On the Relation Between the Traveling-Saleman and the Longest-Path Problems," Operations Research 10, 647-657 (1962), (with W.W. Hardgrave).

"Multistage Optimization," Chemical Engineering Progress 59, 52-60 (1963), (with L.G. Mitten).

"Applications of Dynamic Programming in the Process Industries," American Institute of Industrial Engineers Proceedings, 279-298 (1963).

"Thinned Unequally Spaced Arrays Designed by Dynamic Programming," PGATP Symposium, 224-227 (1963), (with M. Skolnik, I. Kefauver and J. Sherman).

"Optimize Multistage Processes with Dynamic Programming," Chemical Engineering, 70, 195-200 (1963), (with L. G. Mitten).

"A Geometric Model and a Graphical Algorithm for a Sequencing Problem," Operations Research 11, 889-900 (1963), (with W.W. Hardgrave).

"Dynamic Programming Applied to Unequally Spaced Arrays," Institute of Electrical and Electronic Engineers Transactions on Antennas and Propagation, AP-12, 34-43 (1964), (with M. Skolnik and J. Sherman).

"Optimization of Multistage Cycle and Branching Systems by Serial Procedures," Journal of American Institute of Chemical Engineers 10, 913-919 (1964), (with R. Aris and D.J. Wilde).

"An Algorithm for the Line Balancing Problem," Management Science 11, 308-315 (1964), (with A. Gutjahr).

"Decomposition of Linear Programs by Dynamic Programming," Naval Research Logistics Quarterly 11, 191-195 (1964).

"A Quantitative Approach to Employment Planning," Management Science 11, B-155-B-165 (1965), (with H. Nuttle).

"Scheduling to Minimize Interaction Cost," Operations Research 14, 15-23 (1966), (with R.C. Carlson).

"A Note on Lot Sizes and Safety Stock Level," Journal of Industrial Engineering XVII, 389-390 (1966).

"Multicycle Project Planning," Journal of Industrial Engineering XVIII, 278-284 (1967), (with A.C. Fisher).

A Note on Capital Budgeting," Journal of Industrial Engineering XVIII, 375-376 (1967).

"A Transport Improvement Problem Transformable to a Best Path Problem," Transportation Science 1, 295-307 (1967), (with A.J. Goldman).

"A Note on the Generalized Lagrange Multiplier Solution to an Integer Programming Problem," Operations Research 16, 450-453 (1968), (with Z. Ullmann).

"The Traveling Salesman Problem: A Survey," Operations Research 16, 538-558 (1968), (with M. Bellmore).

"Minimizing Round-Off Errors", Journal of Industrial Engineering XIX, 306-308 (1968).

"Computer Construction of Project Networks," Communications of the Association of Computing Machinery 11, 493-497 (1968), (with A.C. Fisher and J.S. Liebman).

"Optimal Capacity Expansion," Naval Research Logistics Quarterly 15, 531-550 (1968), (with G.T. Howard).

"Computational Results for a Stopping Rule Problem on Averages," Naval Research Logistics Quarterly 15, 567-578 (1968), (with D. Pierce).

"Discrete Dynamic Programming and Capital Allocation," Management Science 15, 494-505 (1969), (with Z. Ullmann).

"Scheduling Local and Express Service," Transportation Science 3, 164-175 (1969).

"The Set Partitioning Problem: Set Covering Problem with Equality Constraints," Operations Research 17, 848-856 (1969), (with R.S. Garfinkel).

"A Decomposable Transshipment Algorithm for a Multiperiod Transportation Problem," Naval Research Logistics Quarterly 16, 517-524 (1969), (with M. Bellmore and D. Eklof).

"Optimal Political Districting by Implicit Enumeration Techniques," Management Science 16, 495-508 (1970), (with R.S. Garfinkel).

"A Finiteness Proof for Modified Dantzig Cuts in Integer Programming," Naval Research Logistics Quarterly 17, 309-314 (1970), (with V. J. Bowman).

"A Modified Linear Program for Columnar Methods in Mathematical Programming," Operations Research 19, 1051-1060 (1971), (with W. Widhelm).

"Deep Cuts in Integer Programming," Opsearch 8, 89-111 (1972), (with V.J. Bowman).

"Bulk Service Scheduling," Operations Research 20, 813-819 (1972), (with P.L. Yu).

"Optimal Set Covering: A Survey," in Perspectives on Optimization, A. Geoffrion (ed.), 164-193, Addison-Wesley, (1972), (with R.S. Garfinkel).

"A Generalized Permanent Label Setting Algorithm for the Shortest Path Between Specified Nodes," Journal of Mathematical Analysis and Applications 38, 328-334 (1972).

"Temporal Expansion of a Transportation Network - I," Transportation Science 6, 306-323 (1972), (with S.C. Frey, Jr).

"Temporal Expansion of a Transportation Network - II," Transportation Science 6, 395-406 (1972), (with S.C. Frey, Jr).

"A Column Generation Algorithm for Optimal Traffic Assignment," Transportation Science 7, 168-176 (1973), (with T. Leventhal and L. E. Trotter, Jr.).

"A Survey of Integer Programming Emphasizing Computation and Relations Among Models," in Mathematical Programming, T.C. Hu and S. M. Robinson (eds.), 77-155, Academic Press, (1973), (with R.S. Garfinkel).

"Properties of Vertex Packing and Independence System Polyhedra," Mathematical Programming 6, 48-61 (1974), (with L.E. Trotter, Jr.).

"Set Partitioning and Chain Decomposition," Management Science 20, 1413-1423 (1974), (with L.E. Trotter, Jr. and R.M. Nauss).

"Some Inequalities on the Chromatic Number of a Graph," Discrete Mathematics 10, 117-121 (1974), (with T.King).

"Two Computationally Difficult Set Covering Problems That Arise in Computing the 1-Width of Incidence Matrices of Steiner Triple Systems," Mathematical Programming Studies 2, 72-81 (1974), (with D.R. Fulkerson and L. E. Trotter, Jr.).

"When the Greedy Solution Solves a Class of Knapsack Problems," Operations Research 23, 207-217 (1975), (with M.J. Magazine and L.E. Trotter, Jr.).

"Vertex Packings: Structural Properties and Algorithms," Mathematical Programming 8, 232-248 (1975), (with L.E. Trotter, Jr.).

"Location of Bank Accounts to Optimize Float: An Analytic Study of Exact and Approximate Algorithms," Management Science 23, 789-810 (1977), (with G. Cornuejols and M. L. Fisher) -- published as an exceptional paper and recipient of Lanchester Prize.

"On the Uncapacitated Location Problem," Annals of Discrete Mathematics, 1, 163-178 (1977), (with G. Cornuejols and M.L. Fisher).

"A Model and an Algorithm for the Dynamic Traffic Assignment Problem," Transportation Science 12, 183-199 (1978), (with D. Merchant).

"Optimality Conditions for a Dynamic Traffic Assignment Model," Transportation Science 12, 200-207 (1978), (with D. Merchant).

"An Analysis of Approximations for Maximizing Submodular Set Functions-I," Mathematical Programming 14, 265-294 (1978), (with M.L. Fisher and L. A. Wolsey).

"An Analysis of Approximations for Maximizing Submodular Set Functions-II," Mathematical Programming Studies 8, 73-87 (1978), (with M.L. Fisher and L. A. Wolsey).

"Tight Bounds for Christofides Traveling Salesman Heuristic," Mathematical Programming 14, 116-121 (1978), (with G. Cornuejols).

"Best Algorithms for Maximizing a Submodular Function," Mathematics of Operations Research 3, 177-188 (1978), (with L.A. Wolsey).

"An Analysis of Approximations for Maximizing a Hamiltonian Circuit," Operations Research 27, 799-809 (1979), (with M.L. Fisher and L.A. Wolsey).

"Easy and Hard Bottleneck Location Problems," Discrete Applied Mathematics 1, 209-216 (1979), (with W.L. Hsu).

"Optimal Set Partitioning Matchings and Lagrangian Duality," Naval Research Logistics Quarterly 26, 553-563 (1979), (with G. Weber).

"Matroids and a Reliability Analysis Problem," Mathematics of Operations Research 4, 132-144 (1979), (with M. Ball).

"Worst Case and Probabilistic Analysis of Algorithms for a Location Problem," Operations Research 28, 847-888 (1980), (with G. Cornuejols and L.A. Wolsey).

"A Canonical Representation of Simple Plant Location Problems and its Applications," SIAM Journal on Algebraic and Discrete Methods 1, 261-272 (1980), (with G. Cornuejols and L.A. Wolsey).

"A Polynomial Algorithm for Maximum Weighted Vertex Packings on Graphs Without Long Odd Cycles," Mathematical Programming 20, 225-232 (1981), (with W.L. Hsu and Y. Ikura).

"Maximizing Submodular Set Functions: Formulations and Analysis of Algorithms," Annals of Discrete Mathematics 11, 279-302 (1981), (with L.A. Wolsey).

"Algorithms for Minimum Covering by Cliques and Maximum Cliques in Claw-Free Perfect Graphs," Discrete Mathematics 37, 181-191 (1981), (with W.L. Hsu).

"An Application of Vertex Packing to Data Analysis in the Evaluation of Pavement Deterioration," Operations Research Letters 1, 13-17 (1981), (with E. Gattass).

"A Polynomial Algorithm for the Minimum Weighted Clique Cover Problem on Claw-Free Perfect Graphs," Discrete Mathematics 38, 65-71 (1982), (with W.L. Hsu).

"An Efficient Primal Simplex Algorithm for Maximum Weighted Vertex Packing on Bipartite Graphs," Annals of Discrete Mathematics 16, 149-168 (1982), (with Y. Ikura).

"R-Domination on Block Graphs," Operations Research Letters 1, (1982), (with G. Chang).

- "The k -Domination and k -Stability Problems on Sun-Free Chordal Graphs." SIAM Journal on Algebraic and Discrete Methods 5, 332-345 (1984), (with G. Chang).
- "A Polynomial Algorithm for the Max-Cut Problem on Graphs Without Long Odd Cycles," Mathematical Programming 29, 28-40 (1984), (with M. Grotschel).
- "Algorithms for Maximum Weight Cliques, Minimum Weighted Clique Covers, and Minimum Colorings of Claw-Free Perfect Graphs," Annals of Discrete Mathematics 21, 373-385 (1984), (with W.L. Hsu).
- "Covering, Packing, and Generalized Perfection," SIAM Journal on Algebraic and Discrete Methods 6, 109-132 (1985), (with G. Chang).
- "Duality for Integer Optimization," pp.11-20 in Combinatorial Optimization: Annotated Bibliographies, M. O'hEigeartaigh, J.K. Lenstra, and A.H.G. Rinnooy Kan (eds.) Wiley, (1985).
- "Simplex Pivots on the Set Packing Polytope," Mathematical Programming 33, 123-138 (1985), (with Y. Ikura).
- "Computational Experience with a Polynomial-Time Dual Simplex Algorithm for the Transportation Problem," Discrete Applied Mathematics 13, 239-248 (1986), (with Y. Ikura).
- "Branch-and-Bound and Parallel Computation: A Historical Note," Operations Research Letters 7, 65-69 (1988), (with E. Pruul and R. Rushmeier).
- "Operations Research: The Next Decade," Operations Research 36, 619-637 (1988), (One of four principal authors of committee report).
- "Integer Programming," pp. 447-528 in Optimization, Vol. 1 of Handbooks in OR, G.L. Nemhauser, A.H.G. Rinnooy Kan, and M.J. Todd, (eds), North-Holland, (1989), (with L.A. Wolsey).
- "The Uncapacitated Facility Location Problem," pp. 119-172 in Discrete Location Theory, R.L. Francis and P. Mirchandini, (eds), Wiley (1990), (with G. Cornuejols and L.A. Wolsey).
- "A Recursive Procedure to Generate All Cuts in Mixed-Integer Programs," Mathematical Programming 46, 379-390 (1990), (with L.A. Wolsey).
- "An Assignment Problem with Side Constraints: Strong Cutting Planes and Separation," pp. 457-472 in Economic Decision Making: Games, Econometrics, and Optimization, J.J. Gabszewicz, J.F. Richard, and L.A. Wolsey, eds, North-Holland (1990), (with R. Aboudi).
- "Some Facets for an Assignment Problem with Side Constraints," Operations Research 39, 244-250 (1991), (with R. Aboudi).
- "A Polyhedral Approach to Edge Coloring," Operations Research Letters 10, 315-322 (1991), (with S. Park).
- "Experiments with Parallel Branch-and-Bound Algorithms for the Set Covering Problem," Operations Research Letters 13, 277-286 (1992), (with R. Rushmeier).

"A Strong Cutting Plane/Branch-and-Bound Algorithm for Node Packing," Journal of the Operations Research Society 43, 443-457 (1992), (with G. Sigismondi).

"Recent Developments and Future Directions in Mathematical Programming," IBM Systems Journal 31, 79-93 (1992), (with E.L. Johnson).

"A Cutting Plane Algorithm for the Single Machine Scheduling Problem with Release Times," 63-82 in Combinatorial Optimization: New Frontiers in Theory and Practice," M. Akgul, H.W. Hamacher, and S. Tufekci, eds, Springer-Verlag (1992), (with M.W. Savelsbergh).

"Min-Cut Clustering," Mathematical Programming 62, 133-151 (1993), (with A. Mehrotra and E.L. Johnson).

"Formulating a Mixed-Integer Distribution Problem to Improve Solvability," Operations Research 41, 1013 -1019 (1993), (with C. Barnhart, E.L. Johnson, G. Sigismondi and P. Vance).

"The Age of Optimization: Solving Large-Scale Real World Problems," Operations Research 42, 5-13 (1994).

"Some Properties of the Fleet Assignment Problem," Operations Research Letters 15, 59-71(1994), (with Z. Gu, E.L. Johnson, and Y. Wang).

"Solving Binary Cutting Stock Problems by Column Generation and Branch-and-Bound," Computational Optimization and Applications 3, 111-130 (1994), (with P. Vance and C. Barnhart, E.L. Johnson).

"MINTO: A Mixed INTeger Optimizer," Operations Research Letters 15, 47-58 (1994), (with M. Savelsbergh and G. Sigismondi).

"One-Machine Generalized Precedence Constrained Scheduling Problems," Operations Research Letters 16, 87-99 (1994), (with E. Wikum and D. Llewellyn).

"Lifted Cover Facets of the 0-1 Knapsack Polytope with GUB Constraints," Operations Research Letters 16, 255-263 (1994), (with P. Vance).

"The Fleet Assignment Problem: Solving a Large-scale Integer Program," Mathematical Programming 70, 211-232 (1995), (with C. Hane, C. Barnhart, E.L. Johnson, R. Marsten, and G. Sigismondi).

"Maximizing a Submodular Function by Integer Programming: Part I - the Quadratic Case," European Journal of Operations Research 94, No. 1, 154-166, (1996), (with H. Lee and Y. Wang).

"Maintenance and Crew Consideration in the Fleet Assignment Problem," Transportation Science 30, No. 3, 249-260 (1996), (with L. Clarke, C. Hane and E. Johnson).

"A Combined Lagrangian, Linear Programming and Implication Heuristic for Large-Scale Set Partitioning Problems," Journal of Heuristics 1, 247-259 (1996), (with A. Atamturk and M. Savelsbergh).

"Finding an Optimal Stationing Policy for the US Army in Europe After the Force Drawdown," Military Operations Research, Vol. 2, No. 4 (1996), (with A. Loerch, N. Boland and E. Johnson).

"Production Scheduling in Almost Continuous Time" IIE Transactions 29, 391-398 (1997), (with K. Gue and M. Padron).

"Airline Crew Scheduling: A New Formulation and Decomposition," Operations Research 45, No. 2, 188-200 (1997) (with P. Vance, C. Barnhart, and E.L. Johnson).

"The Aircraft Rotation Problem," Annals of Operations Research 69, 33-46 (1997), (with L. Clarke, E. Johnson, and Z. Zhu).

"Heuristic Optimization: A hybrid AI/OR approach," Proceedings of CP97: Constraint-directed Scheduling, (1997), (with Clements, Crawford, D. Joslin, M. Puttlitz, and M. Savelsbergh).

"Branch-and-Price: Column Generation for Solving Huge Integer Problems," Operations Research 46, (1998), (with C. Barnhart, E.L. Johnson, M. Savelsbergh and P. Vance).

"Polyhedral Characterizations and Perfection of Line Graphs," Discrete Applied Mathematics 81, 141-154 (1998), (with D. Cao).

"Scheduling a Major College Basketball Conference," Operations Research 46, No. 1, 1-8, (1998), (with M. Trick).

"Cover Inequality Separation is NP-Hard," Operations Research Letters 23, 35-40, (1998), (with D. Klabjan and C.A. Tovey).

"An Optimization Based Heuristic for Political Districting," Management Science 44, 1100-1114, (1998), (with A. Mehrotra and E. Johnson).

"Flight String Models for Aircraft Fleeting and Routing," Transportation Science 32, 208-220, (1998), (with C. Barnhart, N. Boland, L. Clarke, E. Johnson, and R. Sheno).

"Lifted Cover Inequalities for 0-1 Integer Programs I: Computation," INFORMS Journal of Computing 10, 427-437, (1998), (with Z. Gu and M.W.P. Savelsbergh).

"Lifted Cover Inequalities for 0-1 Integer Programs II: Complexity," INFORMS Journal on Computing 11, (1999), (with Z. Gu and M.W.P. Savelsbergh).

"Allocating Fibers in Cable Manufacturing," MSOM, 1, 21-35, (1999), (with D. Adelman, M. Padron, R. Pandit, and R. Stubbs).

"Price-Directed Control of Remnant Inventory Systems," Operations Research, 47, 889-898 (1999), (with D. Adelman).

"Lifted Flow Cover Inequalities for Mixed 0-1 Integer Programs," Mathematical Programming 85, 439-467, (1999), (with Z. Gu and M. Savelsbergh).

"The Asymmetric Traveling Salesman Problem with Replenishment Arcs," European Journal of Operations Research 123, 408-427, (2000), (with N. Boland and L. Clarke).

"A Generalized Assignment Problem with Special Ordered Sets: A Polyhedral Approach," Mathematical Programming 89, 187-203, (2000), (with I. de Faris and E. Johnson).

"Conflict Graphs in Solving Integer Programming Problems," European Journal of Operations Research 121, 40-55, (2000), (with A. Atamturk and M. Savelsbergh).

"The Mixed Vertex Packing Problem," Mathematical Programming 89, 35-54, (2000), (with A. Atamturk and M. Savelsbergh).

"Airline Crew Recovery," Transportation Science 34, 337-348, (2000), (with L. Lettovsky and E. Johnson).

"On the Capacitated Lot-Sizing and Continuous 0-1 Knapsack Polyhedra," European Journal of Operations Research 125, 298-315, (2000), (with A. Miller and M. Savelsbergh).

"Dynamic Network Flow with Uncertain Arc Capacities: Formulation and Problem Structure," Operations Research 48, 233-242, (2000), (with G. Glockner).

"A Parallel Primal-Dual Simplex Algorithm," Operations Research Letters 27, 47-55, (2000), (with D. Klabjan and E.L. Johnson).

"Sequence Independent Lifting in Mixed Integer Programming," Journal of Computational Optimization 4, 109-103, (2000), (with Z. Gu and M. Savelsbergh).

"Progress in Linear Programming Based Algorithms for Integer Programming: An Exposition," INFORMS Journal on Computing 12, 2-23, (2000), (with E. Johnson and M. Savelsbergh).

"Dynamic Network Flow with Uncertain Arc Capacities: Decomposition Algorithm and Computational Results," Computational Optimization and Applications 18, 233-250, (2001), (with G. Glockner and C. Tovey).

"Solving Large Airline Crew Scheduling Problems: Random Pairing Generation and Strong Branching," Computational Optimization and Applications 20, 73-91, (2001), (with D. Klabjan and E.L. Johnson).

"A Family of Inequalities for the Generalized Assignment Polytope," OR Letters 29, 49-55, (2001), (with I. de Farias).

"Valid Inequalities for Problems with Additive Variable Upper Bounds," Mathematical Programming 91, 145-162, (2001), (with A. Atamturk and M. Savelsbergh).

"A Branch-and-Cut for Combinatorial Optimization Problems without Auxiliary Binary Variables," The Knowledge Engineering Review 16, 25-39, (2001), (with I. De Farias and E.L. Johnson).

"Airline Crew Scheduling with Regularity," Transportation Science 35, 359-374 (2001), (with D. Klabjan, E.L. Johnson, E. Gelman and S. Ramaswamy).

"The Traveling Tournament Problem: Description and Benchmarks," Principals and Practice of Constraint Programming – CP 2001, Springer Lecture Notes in Computer Science 2239, 580-585, (2001), (with K. Easton and M.A. Trick).

"Facets of the Complementarity Knapsack Polytope," Mathematics of Operations Research 27, 210-226, (2002), (with I. de Farias and E. Johnson).

"Airline Crew Scheduling with Time Windows and Plane Count Constraints," Transportation Science 36, 337-348, (2002), (with D. Klabjan, E.L. Johnson, E. Gelman and S. Ramaswamy).

"A Stochastic Model of Airline Operations," Transportation Science 36, 357-377, (2002), (with J. Rosenberger, A. Schaefer, D. Goldsman, E. Johnson and A. Kleywegt).

"Crew Scheduling," Handbook of Transportation Science, 2nd Edition, R.W. Hall Ed., pp. 517-560, (2002), (with C. Barnhart, A.M. Cohn, E.L. Johnson, D. Klabjan, and P.H. Vance).

"A Polyhedral Study of Integer Variable Upper Bounds," Mathematics of Operations Research 27, 711-739, (2002), (with D. Klabjan).

"On the Polyhedral Structure of a Multi-Item Production Planning Model with Setup Times," Mathematical Programming 94, 375-405, (2003), (with A. Miller and M. Savelsbergh).

"A Multi-Item Production Planning Model with Setup Times: Algorithms, Reformulations, and Polyhedral Characterizations for a Special Case," Mathematical Programming 95, 71-90, (2003), (with A. Miller and M. Savelsbergh).

"The Sample Average Approximation Method Applied to Stochastic Routing Problems: A Computational Study," Computational Optimization and Applications 24, 289-333, (2003), (with B. Verweij, S. Ahmed, A. Kleywegt, and A. Shapiro).

"A Simplex Based Algorithm for 0-1 Mixed Integer Programming," Combinatorial Optimization-Eureka, You Shrink, M. Junger, G. Reinelt, G. Rinaldi (Eds.), Springer lecture notes in Computer Science 2570, (2003), (with J-P. Richard and I. de Farias).

"Rerouting Aircraft for Airline Recovery," Transportation Science 37, 408-421, (2003), (with J. Rosenberger and E. Johnson).

"A Polyhedral Study of the Cardinality Constrained Knapsack Problem," Mathematical Programming 96, 439-467, (2003), (with I. de Farias). (Also extended abstract in IPCO Proceedings, W. Cook and A. Schulz (eds.) Springer Lecture Notes in Computer Science 2337, 291-306, (2003).)

"Lifted Inequalities for 0-1 Mixed Integer Programming: Basic Theory and Algorithms," Mathematical Programming 98, 89-113, (2003), (with Jean-Philippe Richard and Ismael de Farias).

"Lifted Inequalities for 0-1 Mixed Integer Programming: Superlinear Lifting," Mathematical Programming 98, 115-143, (2003), (with Jean-Philippe Richard and Ismael de Farias). (Also extended abstract in IPCO Proceedings, W. Cook and A. Schulz (eds.) Springer Lecture Notes in Computer Science 2337, 161-175, (2003).)

"Models for Representing Piecewise Linear Cost Functions," Operations Research Letters 32, 44-48, (2004), (with Ahmet Keha and Ismael de Farias).

- “CP Based Branch-and-Price,” Constraint and Integer Programming: Toward a United Methodology, M. Milano (ed.), pp. 207-232, Kluwer Academic Publishers, 2004.
- “Sports Scheduling,” Handbook of Scheduling, J. Y-T. Leung (ed.), 52-1 – 52-19. Chapman and Hall/CRC (2004), (with K. Easton and M. Trick).
- “Solving the Traveling Tournament Problem: A Combined Integer Programming and Constraint Programming Approach,” E. Burke and P. Causmaeher (eds.), Springer Lecture notes in Computer Science 2740, 63-77, (2004), (with Kelly Easton and Michael Trick).
- “A Robust Fleet Assignment Model with Hub Isolation and Short Cycles,” Transportation Science 38, 357-368, (2004), (with J.M. Rosenberger and E.L. Johnson).
- “Airline Crew Scheduling under Uncertainty,” Transportation Science 39, 340-348, (2005). (with A. Schaefer, E. Johnson, and A. Kleywegt).
- “A Polyhedral Study of Nonconvex Quadratic Programs with Box Constraints,” Mathematical Programming 102, 531-557, (2005), (with Dieter Vandembussche).
- “A Branch-and-Cut Algorithm for Nonconvex Quadratic Programs with Box Constraint,” Mathematical Programming 102, 559-575, (2005), (with Dieter Vandembussche).
- “The 2-Edge-Connected Subgraph Polyhedron,” Journal of Combinatorial Optimization 9, 357-379, (2005), (with Dieter Vandembussche).
- “Improving Airline Operational Performance through Schedule Perturbation,” Annals of Operations Research 144, 3-16, (2006), (with Andrew Schaefer).
- “A Branch-and-Cut Algorithm for the Stochastic Uncapacitated Lot-Sizing Problem,” Mathematical Programming 105, 55-84, (2006), (with Yongpei Guan, Shabbir Ahmed and Andrew Miller).
- “Short-term Booking of Air Cargo Space,” European Journal of Operational Research 174, 1979-1990, (2006), (with Ek-Peng Chew, Huei-Chuen Huang, Ellis Johnson, Joel Sokol, and Chun-How Leong).
- “On Formulations of the Stochastic Uncapacitated Lot-sizing Problem,” OR Letters 34, 241-250, (2006), (with Yongpei Guan, Shabbir Ahmed and Andrew Miller).
- “An Optimization Approach for Planning Daily Drayage Operations,” Central European Journal of Operations Research 14, 141-156, (2006), (with Y. Ileri, M. Bazaraa, T. Gifford, J. Sokol and E. Wikum).
- “A Branch-and-Cut Algorithm without Binary Variables for Nonconvex Piecewise Linear Optimization,” Operations Research 54, 847-858, (2006), (with Ahmet Keha and Ismael de Farias).
- “Air Transportation: Irregular Operations and Control,” Transportation, Vol. 14 Handbooks of Operations Research and Management Science, C. Barnhart and G. Laporte (eds.), 1-67, (2006), (with M. Ball, C. Barnhart and A. Odoni).

“Analysis of Bounds for a Single-Item Capacitated Lot-Sizing Problem,” Computers and Operations Research, 34, 1721-1743, (2007), (with J. Hardin and M. Savelsbergh).

“Sequential pairing of mixed integer inequalities,” Discrete Optimization, 4, 21-39, (2007), (with Yongpei Guan and Shabbir Ahmed).

“An Integer Programming Approach for Linear Programs with Probabilistic Constraints,” extended abstract, IPCO Proceedings 2007, M. Fischetti and D. Williamson (eds.), Springer Lecture Notes in Computer Science, Vol. 4513, 410-423, 2007, (with J. Luedtke and S. Ahmed) .

“Strong valid inequalities for the resource-constrained scheduling problem with uniform resource requirements,” Discrete Optimization, 5, 19-35, (2008), (with J. Hardin and M. Savelsbergh).

“George Dantzig’s contributions to integer programming,” Discrete Optimization 5, 168-173 (2008) (with M. Groetschel).

“Nonconvex lower semicontinuous piecewise linear optimization,” Discrete Optimization 5, 467-488 (2008) (with J.P. Vielma and A. Keha).

“Per-seat on demand air transportation part I: problem description and an integer multi-commodity flow model,” Transportation Science 42, 263-278 (2008) (with D. Espinoza, R. Garcia, M. Goycoolea and M. Savelsbergh).

“Per-seat on demand air transportation part II: parallel local search,” Transportation Science 42, 279-291, (2008) (with D. Espinoza, R. Garcia, M. Goycoolea and M. Savelsbergh).

“A Lifted Linear Programming Branch-and-Bound Algorithm for Mixed Integer Conic Quadratic Programs,” INFORMS Journal on Computing 20, 438-450 (2008) (with J. Vielma and S. Ahmed).

“Modeling Disjunctive Constraints with a Logarithmic Number of Variables and Constraints,” extended abstract in IPCO Proceedings 2008, F. Rinaldi (ed.), 199-213 Springer Lecture Notes in Computer Science, (with J. Vielma).

“Strategic Planning with Start-time Dependent Variable Costs,” Operations Research 57, 1250-1261, 2009 (with J. Luedtke).

“Cutting Planes for multi-stage stochastic integer programs,” to Operations Research 57, 287-298 2009 (with Y. Guan and S. Ahmed).

“Information-based branching schemes for binary linear mixed integer problems,” Mathematical Programming Computation 1, 249-293, 2009 (with F. Kilinc Karzan and M.W.P. Savelsbergh)

“Approximating the Stability Region for Binary Mixed Integer Programs,” Operations Research Letters 37, 250-254, 2009 (with F. Kilinc-Karzan, A. Toriello, S. Ahmed and M. Savelsbergh).

“An Integer Programming Approach to Linear Programs with Probabilistic Constraints,” Mathematical Programming 122, 247-272, 2010 (with J. Luedtke and S. Ahmed).

- “Combining Exact and Heuristic Approaches for the Capacitated Fixed-Charge Network Flow Problem” INFORMS J. on Computing 22, 314-325, 2010 (with M. Hewitt and M.W.P. Savelsbergh).
- “A Note on ‘A Superior Representation Method for Piecewise Linear Functions’” INFORMS J. on Computing 22, 493-497, 2010 (with J. Vielma and S.Ahmed).
- “Mixed-Integer Models for Nonseparable Piecewise Linear Optimization: Unifying Framework and Extensions” Operations Research 58, 303-315, 2010(with J. Vielma and S.Ahmed).
- “Tactical and Operational Planning of Scheduled Maintenance for Per-Seat, On-Demand Air Transportation” Transportation Science 44, 291 – 306, 2010 (with G. Keysan and M.W.P. Savelsbergh).
- “Decomposing inventory routing problems with approximate value functions” Naval Research Logistics 57, 718–727) 2010 (with A. Toriello and M.W.P. Savelsbergh).
- “Dynamic Programming Based Column Generation on Time-Expanded “Networks: Application to the Dial-a-Flight Problem” INFORMS J. on Computing 23, 105-119, 2011 (with F. Engineer and M.W.P. Savelsbergh)
- “Lifted Tableaux Inequalities for 0–1 Mixed-Integer Programs: A Computational Study” INFORMS J. on Computing 23, 416-424, 2011 (with A.K. Narisetty and J.P.P Richard)
- “Modeling Disjunctive Constraints with a Logarithmic Number of Binary Variables and Constraints” Mathematical Programming 128, 49-72, 2011 (with J. Vielma)
- "A probabilistic comparison of split and type 1 triangle cuts for two row mixed-integer programs," SIAM Journal on Optimization 21, 617-632, 2011 (with Q. He and S. Ahmed)
- “The Fixed Charge Shortest Path Problem” INFORMS J. on Computing 24, 578-596, 2012 (with F. Engineer, M.W.P. Savelsbergh and J-H. Song)
- “Fixed-charge transportation with product blending “ Transportation Science 46, 281-295, 2012 (with D. Papageorgiou, A. Toriello, and M. Savelsbergh).
- “A Branch-Price-And-Cut Algorithm for a Maritime Inventory Routing Problem” Operations Research 60. 106-122, 2012 (with F. Engineer, K. Furman, M.W.P. Savelsbergh, and J.-H Song)
- "The Value Function of an Infinite Horizon Single-item Lot-Sizing Problem" Operations Research Letters 40, 12-14, 2012.(with A. Toriello).
- “Sell or Hold: A simple two-stage stochastic optimization problem” Operations Research Letters 40, 69-73, 2012 (with Q. He and S. Ahmed)
- “Mixed integer linear programming formulations of for probabilistic constraints” Operations Research Letters 40. 153-158. 2012 (with J.Vielma and S. Ahmed)
- “Pricing for Production and Delivery Flexibility in Single-item Lot-sizing” Computers and Operations Research 39, 3408-3419, 2012 (with Y. Li and M.W.P. Savelsbergh).

“Column Generation for Linear and Integer programming” in Optimization Stories M. Groetschel ed. Documenta Mathematica 2012.

Branch-and-Price Guided Search for Integer Programs with an Application to the Multicommodity Fixed-Charge Network Flow Problem” INFORMS Journal on Computing 25, 302-316, 2013 (with M. Hewitt and M.W.P. Savelsbergh).

”Scheduling and Routing of Fly-in Safari Planes Using a Flow-over-Flow Model” in Facets of Combinatorial Optimization, M. Junger and G. Reinelt eds. pp. 419-447, 2013 (with A. Fugenschuh and Y. Zeng).

“A Branch-and-Price Guided Search Approach to Maritime Inventory Routing” Computers and Operations Research 40, 1410-1419, 2013 (with M. Hewitt, M.W.P. Savelsbergh and J-H Song).

“Restrict-and-Relax Search for 0-1 Mixed-Integer Programming,” EURO Journal on Combinatorial Optimization 1, 201-218, 2013 (with M. Guzelsoy and M.W.P. Savelsbergh).

“Optimizing Recruiting Asset Allocation and Routing with Integer Programming” Military Operations Research 18, 5-13. 2013 (with K. Bartlett and J. Sokol).

“Optimization of Automated Float Glass Lines” International Journal of Production Economics 145, 561-572, 2013 (with B. Na, S. Ahmed and J. Sokol).

“A Cutting and Scheduling Problem in Float Glass Manufacturing,” 1 The Journal of Scheduling 17, 95-107, 2014 (with B. Na, S. Ahmed and J. Sokol).

“MIRPLib - A Library of Maritime Inventory Routing Problem Instances: Survey, Core Model, and Benchmark Results” European Journal of Operations Research 235, 350-366, 2014 (with D. Papageorgiou, A. Keha, M.-S. Cheon and J. Sokol).

“Using diversification, communication and parallelism to solve mixed-integer linear programs” Operations Research Letters 42, 186-189, 2014 (with R. Carvajal, S. Ahmed, K. Furman, V. Goel and Y. Shao).

“Congestion-Aware Dynamic Routing in Automated Material Handling Systems” Computers and Industrial Engineering 70, 176-182, 2014 (with K. Bartlett, J. Lee, S. Ahmed and J. Sokol).

“Two-Stage Decomposition Algorithms for Single Product Maritime Inventory Routing”, INFORMS Journal on Computing 26, 825-847, 2014. (with D. Papageorgiou, A. Keha and J. Sokol).

“Minimum Concave Cost Flow over a Grid Network,” Mathematical Programming B 150, 79-98, 2015 (with Q. He and S. Ahmed).

“Approximate Dynamic Programming for a Class of Long-Horizon Maritime Inventory Routing Problems” Transportation Science 49, 870-885, 2015 (with D. Papageorgiou, M.-S. Cheon and J. Sokol).

“A Dual Heuristic for Mixed Integer Programming” Operations Research Letters 43, 411-417, 2015 (with Y. Li and O. Ergun).

“How important are branching decisions: Fooling MIP solvers,” Operations Research Letters 43, 273-278, 2015 (with P. Le Bodic).

“Learning to Branch in Mixed Integer Programming,” American Assoc. Artificial Intelligence Proceedings, 724-731, 2016 (with E. Khahil, P. Le Bodic, L. Song and B. Dilkina).

“A polynomial-time algorithm for a class of minimum concave cost flow problems” SIAM J. on Optimization 26, 2059-2079, 2016 (with Q. He and S. Ahmed).

“A Parallel Local Search Framework for Fixed-Charge Multicommodity Flow Problems”, Computers and Operations Research 77, 44-57, 2017 (with L. Munguia, S. Ahmed, D. Bader, V. Goel, Y. Shao).

“An Abstract Model for Branching and its Application to Mixed Integer Programming”, Mathematical Programming 166, 369-405, 2017 (with P. Le Bodic).

“A hybrid primal heuristic for finding feasible solutions to mixed integer programs”, European Journal of Operations Research 262, 62-71, 2017 (with C. Andrade and S. Ahmed and Y, Shao).

“Comments on: On learning and branching: a survey”, TOP 25, 242-246, 2017 (with B. Dilkina, E. Khalil).

“Learning to Run Heuristics in Tree Search”, Proceedings of the International Joint Conference on Artificial Intelligence 26, 659-666, 2017 (with E. Khalil, B. Dilkina, S. Ahmed, Y. Shao).

“Estimating the Size of Search Trees by Sampling with Domain Knowledge”, Proceedings of the International Joint Conference on Artificial Intelligence 26, 473-479, 2017 (with G. Belov, S. Esler, D. Fernando, P. Le Bodic).

Accepted

“Alternating Criteria Search: A Parallel Large Neighborhood Search Algorithm for MIP”, to appear in Computational Optimization and Applications (with L. Munguia, S. Ahmed, D. Bader, Y. Shao).

“Lot Targeting and Lot Dispatching Decision Policies for Semiconductor Manufacturing: Optimization under Uncertainty with Simulation Validation”, to appear in International Journal of Production Research (with M. Siebert, K. Bartlett, H. Kim, S. Ahmed, J. Lee, D. Nazzal, J. Sokol).

Submitted

“Decomposition of Loosely Coupled IPs: A Multiobjective Perspective”, (with M. Bodur, S. Ahmed, N. Boland).

“A Dynamic Discretization Discovery Algorithm for the minimum duration time dependent shortest path problem”, (with E. He, N. Boland, M. Savelsbergh).

C. Presentations (1998 – present)

Operations Research Center, MIT, April 1998
INFORMS, Montreal, Tutorial, April 1998
DIMACS, Rutgers, Workshop on Large-Scale Discrete Optimization, May 1998
Lucent Technologies, Distinguished Speaker Series, June 1998
Georgia Tech, Workshop on Polyhedral Combinatorics, September 1998
INFORMS, Seattle, October 1998
DIMACS, Rutgers, December 1998

Oberwolfach, Germany, January 1999
DIMACS, Rutgers, February 1999
Industrial Engineering, Lehigh, March 1999
Industrial Engineering and Management Science, Northwestern, April 1999
SIAM, Atlanta, May 1999
IPCO, Graz, Austria, June 1999
IBM, Gomory Fest, August 1999
NUS, Singapore, September 1999
Oberwolfach, Germany, November 1999
Technical University, Buenos Aires, Argentina, November 1999

Constraint Programming and Integer Programming Workshop, Dagstuhl, Germany, January 2000
Center for Operations Research and Econometrics, University of Louvain, Belgium, March 2000
CP-AI-OR'00: Second International Workshop on Integration of AI and OR techniques in Constraint Programming for Combinatorial Optimization Problems, University of Paderborn, Germany, March 2000
MIT - National University of Singapore Alliance Lecture Series, MIT, April 2000
Northeastern University, April 2000
Odysseus 2000, Workshop on Freight Transportation and Logistics, Crete, Greece, May 2000
EURO 2000, Budapest, Hungary, July 2000, plenary speaker

Australia-New Zealand, Industrial and Applied Math Society – Plenary Speaker, Feb. 2001
University of South Australia, Feb. 2001
5th Combinatorial Optimization Workshop, Aussois, France, March 2001
SUNY Buffalo, April 2001
University of Waterloo, Canada, May 2001
Tristan, Azore Islands, June 2001
Workshop on Combinatorial Optimization, Padberg Fest, Berlin, Germany, October 2001
INFORMS, Miami, FL, November 2001
Optimization Day, Columbia University, New York, November 2001

CP-AI-OR'02 School on Optimization, France, March 2002
IPCO Workshop, MIT, May 2002
In Honor of Egon Balas, CMU, June 2002
Dagstuhl Workshop on The Traveling Salesman Problem, Germany, June 2002
ExxonMobil, Newark, NJ, August 2002
CP2002, Cornell University, September 2002

IV ALIO/EURO Workshop on Applied Combinatorial Optimization, Chili, November 2002
IEOR Berkeley, November 2002
INFORMS, San Jose, CA, November 2002
ExxonMobil/Upstream Research, Houston, December 2002

NSF Grantees Conference, Birmingham, January 2003
University of Arizona, January 2003
National University of Singapore, February 2003
McMaster Optimization Conference, Hamilton, Ontario, July 2003, Plenary Speaker
Mathematical Programming Symposium, Copenhagen, August 2003
Operations Research 2003, German Operations Research Society, Heidelberg, Germany, September 2003, Plenary Speaker

NSF Grantees Conference, Dallas, January 2004
Oberwolfach, Germany, April 2004
INFORMS/CORS, Banff, Canada, May 2004
IPCO Workshop, Columbia University, June 2004
Discrete Optimization Methods Conference, Irkutsk, Russia, July 2004, Keynote Speaker
Latin-American Conference on Combinatorics, Graphs and Applications, Santiago, Chili, August 2004, Invited Speaker
Optimization and Transportation Scheduling Workshop, New Zealand, September 2004, Plenary Speaker
10th International Conference on Stochastic Programming, Tucson, October 2004, Invited Speaker
MIT, Invited Seminar Speaker, November 2004

Purdue, Invited Seminar Speaker, March 2005
Cornell, Invited Seminar Speaker, April 2005
Brown, Invited Seminar Speaker, May 2005
Wisconsin, Invited Seminar Speaker, May 2005
IFORS, Hawaii, Plenary Speaker, July 2005
Operations Research Society of Australia, Plenary Speaker, September 2005
Goldman Lecture, Johns Hopkins University, October 2005
Oberwolfach, Germany, Invited Speaker, November 2005

Clemson, Invited Seminar Speaker, April 2006
DIMACS, Invited Workshop Speaker, New Jersey, April 2006
CORE 40th Anniversary Symposium, Invited Speaker, Belgium, May 2006
Mathematical Programming Symposium, Invited Presentation, Rio de Janeiro, August 2006
Metaheuristics Conference, University of Bologna, Invited Speaker, August 2006
INFORMS, Invited Presentation, Pittsburgh, November 2006

Barbados Workshop, Invited Speaker, March 2007
AFORS Optimization and Discrete Mathematics Program Review, presentation April 2007
CPAIOR Conference, Brussels, Belgium, Plenary speaker, May 2007
TRISTAN VI Conference, Phuket, Thailand, Plenary speaker, June 2007
Workshop on Mixed Integer Programming, Montreal, Canada, Invited speaker, July 2007
LAGOS'07, Puerto Varas, Chile, Invited speaker, November 2007

50 years of Integer Programming conference, Aussois, France, organizer and speaker, January 2008
 Rolf Mohring's 60th Birthday Conference, Berlin, Germany, invited speaker, February 2008
 IPCO Conference, Bertinoro Italy , invited paper, May 2008
 Seminar, University of Bologna, June 2008
 Oberwolfach, Germany, Invited Speaker, November 2008

Hanoi, Vietnam, Invited Conference Speaker, February 2009
 Exxon-Mobil Research, seminar, May 2009
 Louvain-la-Neuve, Belgium, invited speaker May 2009
 Berkeley, CA, MIP 2009, invited speaker, June 2009
 Dagstuhl, Germany, logistics conference, invited speaker, June 2009
 International Symp. Math. Prog. Invited speaker, August 2009
 Lancaster, Univ. seminar. September 2009

Bixby workshop, invited speaker, Erlangen Germany, Sept. 2010
 INFORMS Annual Meeting, Invited Speaker, Nov. 2010
 ICOTA 8, Plenary Speaker, Shanghai China, Dec. 2010

ROADEFF 2011 (Frech OR Society). Plenary Speaker, St. Etienne France, February 2011.
 West Point, Thomas Hawkins Johnson Visiting Scholar Program Lecturer, April 2011.
 IPDO Conference, Plenary Speaker, NewCastle, Australia, July 2011
 Seminar, University of British Columbia, Vancouver, October 2011
 INFORMS Conference, invited presentation, November 2011
 LANDTRANSLOG II, Opening Lecture, Puerto Varas, Chile, December 2011

International Symposium on Combinatorial Optimization, plenary speaker, Athens, Greece, April 2012
 Canadian Operations Research Society, plenary speaker, Niagra Falls, Canada, June 2012,
 KAIST, invited lecture, Korea, June 2012
 International Symposium on Mathematical Programming, invited speaker, August 2012
 INFORMS conference, invited speaker, November 2012.

AFOSR grantees meeting, invited speaker, April 2013
 EURO/INFORMS, plenary speaker, Rome, Italy, July 2013
 MIP 2013, invited speaker, Madison, WI, July 2013
 INFORMS annual meeting, invited speaker, October 2013
 DOS seminar, ISyE, Georgia Tech, November 2013
 Academia Sinica, distinguished lecture, Tapei, Taiwan, December 2013
 Mini-Symposium Tsing Hua University, plenary speaker, Hsinchu, Taiwan, December 2013
 ICOTA 9, Plenary Speaker, Tapei, Taiwan, December 2013

MIT OR Center Seminar, May 2014
 IFORS Barcelona, July 2014
 Oberwolfach Workshop, Germany November 2014

INFORMS Computer Science Conference, Plenary Speaker, Richmond VA. January 2015

University of Illinois ISE Distinguished Lecture Series in Operations Research,
Speaker, April 2015 Georgia Institute of Technology, M.S./Ph.D Graduation
Ceremony, Speaker, December 2015

University of Montreal, Department of Computer Science and Operations Research
Seminar, April 2016 Center of Operations Research and Econometrics, University of
Louvain, Plenary talk at the 50th Anniversary Conference, May 2016

School of Information Engineering and Operations Research, Cornell University for
the retirement celebration of Professor L. Trotter, invited talk, June 2016

D. Other Scholarly Accomplishments

MINTO: Co-developer with Martin Savelsbergh of MINTO software for solving integer
programs

V. SERVICE

A. Professional Contributions

Societies:

Operations Research Society of America (President 1981-82, Vice-President 1980-81,
Council Member 1971-74), Fellow.

Mathematical Programming Society (President 1989-1992, Council Member 1976-79)
Society for Industrial and Applied Mathematics, Fellow

Editorial:

Associate Editor, SIAM Journal on Optimization (1989-92)

Editor, Operations Research (1975-1978)

Area Editor, Operations Research (1979-1980)

Associate Editor, Journal of Optimization Theory and Applications (1972-1982)

Associate Editor, Mathematical Programming (1972-1980)

Associate Editor, Management Science (1969-1976)

Editor-in-Chief, Operations Research Letters (1981-2002)

Co-Editor, Handbooks In Operations Research and Management Science (1985-
2009)

Associate Editor, Discrete Applied Mathematics (1983-)

Associate Editor, Annals of Operations Research (1985-)

Advisory Board, Operations Research (2006-)

Advisory Board, Naval Research Logistics (2005-)

Founding Editor, Operations Research Letters

B. Campus Contributions

Georgia Tech Faculty Athletics Representative to Atlantic Coast Conference and
National Collegiate Athletic Association

Georgia Tech Athletic Association Board (GTAA), Vice-Chair

GTAA Committee on Governance

GTAA Finance Committee

GTAA Committee on Academic Integrity

GTAA Committee on By-laws Revision

Institute Executive Admissions Committee

ISyE Chandler II Chair Search Committee
College of Engineering, Gwaltney Chair Search Committee
ISyE Promotion, Reappointment and Tenure Committee
ISyE Manhattan Associates Chair Search Committee
ISyE Graduate Committee
ISyE Undergraduate Committee
ISyE Advisory Committee
Georgia Tech Foundation Board – GTAA Liaison Rep
Ad Hoc Search Committee for Director of Athletics
Georgia Tech NCAA Certification Committee
Institute Ad Hoc Committee on Post-Tenure Review
Ad Hoc Search Committee for ISyE Chair
Institute Selection Committee for Regents Professors

C. Other Contributions

Advisory Board, Industrial Engineering and Management Sciences, Northwestern
Advisory Committee, Tepper School of Management, Carnegie Mellon
Partner, Sports Scheduling Group (schedule major league baseball and several NCAA
conferences)
Technical Advisory Board, CombineNet
National Research Council (Committee on Review of the Tax Systems Modernization of
the Internal Revenue Service)
National Research Council (Committee on Decision Making Process for Nuclear
Waste Disposal)
Atlantic Coast Conference, Faculty Representative, President 2001-2002
Atlantic Coast Conference, Faculty Representative
NSF Workshop on Transportation Systems – Committee member
NCAA Committee on Research – Chair
NAE Committee on Election Procedures – member
Board member of the International Institute of Applied Systems Analysis
Northwestern University, School of IE & MS – Advisory Board
International Symposium on Mathematical Programming, Georgia Tech, 2000 – Co-
Chair
NSF Proposal Evaluation Panel, Operations Research
President ACC – Academic year 2001-02
External Examiner, National University of Singapore, 2000-2002
Chair, Site Selection Committee, Mathematical Programming Society
INFORMS Search Committee for Editor of Operations Research
Mathematical Programming Society Site Selection Committee for 2006 Symposium
NCAA, Academics, Eligibility and Compliance Cabinet, ACC Representative
Mathematical Programming Society, Program Chair for IPCO 2004
INFORMS Optimization Society, Chair of Lifetime Award Selection Committee
INFORMS, Member of Morse Lecturer Selection Committee
Evaluation Committee of MSI Institute for 10 million dollar award, Santiago,
Chile
Optimization Society Farkas Prize Committee 2013
National Academy of Engineering, Committee on Membership, 2013-2015
INFORMS John von Neumann Theory Prize Committee, 2013-2015
INFORMS Fellow Selection Committee, 2013-2015
National Academy of Engineering, Nominating Committee, 2017

VI. GRANTS AND CONTRACTS (last 15 years)

Funded

Sponsor: ILOG

Title: Integer Programming with Ellis Johnson

Dates: 9/1/98 – 8/31/02

Amount: \$ 50,000

Sponsor: National University of Singapore

Title: Singapore TLI/AP with Ellis Johnson, Joel Sokol, Ozlem Ergun, and Jerry Banks

Dates: 7/1/99 – 12/31/03

Amount: \$ 261,975

Sponsor: National Science Foundation

Title: 17th International Symposium on Mathematical Programming

Dates: 6/1/00 – 5/31/01

Amount: \$ 38,000

Sponsor: IBM

Title: Workshop

Dates: 6/30/92 – 6/30/04

Amount: \$ 8,214

Sponsor: National Science Foundation with Ellis Johnson, Anton Kleywegt and Alex Shapiro

Title: Robust Planning for Routing

Dates: 9/15/00 – 2/28/03

Amount: \$ 160,000

Sponsor: National Science Foundation with I. De Farias at SUNY Buffalo

Title: Nonconvex Combinatorial Optimization

Dates: 6/1/01 – 12/31/05

Amount: \$ 269,025

Sponsor: United Airlines

Title: Airline Scheduling

Dates: 7/1/98 – 6/30/06

Amount: \$ 120,196

Sponsor: AT&T

Title: Graduate Education Support

Dates: 7/1/91 – 6/30/05

Amount: \$ 200,200

Sponsor: National Science Foundation

Title: Basic Research in Logistics Institute/MHRC

Dates: 2/15/97 – 1/31/03

Amount: \$ 191,861

Sponsor: National Science Foundation

Title: Research in Large-Scale Integer Programming

Dates: 7/15/97 – 6/30/01

Amount: \$ 501,036

Sponsor: National Science Foundation with Brown University

Title: Stochastic Combinatorial Optimization

Dates: 9/1/01 – 8/31/06

Amount: \$ 410,001

Sponsor: Delta Technology

Title: Airline Optimization

Dates: 1998 - 2000

Amount: \$ 165,000

Sponsor: Norfolk Southern

Title: Railroad Logistics

Dates: 8/6/97 - 7/3/00

Amount: \$ 150,000

Sponsor: General Motors

Title: Incorporating Revenue Management Techniques into GM's Capacity Planning
with Mo Bazaraa and Pinar Keskinocak

Dates: 4/01/03 – 6/30/05

Amount: \$ 250,000

Sponsor: Exxon Corporation

Title: Solving Nonconvex Network Flow Problems

Dates: 9/1/03 – 8/31/06

Amount: \$ 60,000

Sponsor: Schneider Logistics with Mo Bazaraa and Joel Sokol

Title: Application of Column Generation Techniques to Shipment Planning

Dates: 11/1/03 – 6/30/06

Amount: \$ 135,000

Sponsor: Jetson Systems with Mo Bazaraa and Martin Savelsbergh

Title: JSC Air Taxi (Task 2)

Dates: 11/1/03 – 10/31/05

Amount: \$ 250,000

Sponsor: DayJet Corporation with Mo Bazaraa and Martin Savelsbergh

Title: JSC Air Taxi (Task 3)

Dates: 12/1/04 – 11/30/06

Amount: \$ 250,000

Sponsor: NSF

Title: ITR-(ECS)-(DMC): Collaborative Research: Collaborative Logistics with
Martin Savelsbergh, Ozlem Ergun, Anton Kleywegt and John Bartholdi

Dates: 9/15/04 – 8/31/06

Amount: \$ 1,088,272

Sponsor: NSF

Title: Collaborative Research: Exploiting Cyberinfrastructure to Solve Real-
Time with Martin Savelsbergh and Shabbir Ahmed

Dates: 9/1/05 – 8/31/09

Amount: \$245,000

Sponsor: DayJet Corporation

Title: DayJet on Demand Air Service with Martin Savelsbergh (Task 4)

Dates: 4/1/06 – 9/30/07

Amount: \$252,200

Sponsor: AFOSR

Title: Discrete Optimization and Air Mobility Command with Martin Savelsbergh

Dates: 2/15/07 – 11/30/08

Amount: \$283,509

Sponsor: DayJet Corporation

Title: Optimization for Per-Seat, On-Demand Air Transportation with Martin Savelsbergh (Task 5)

Dates: 5/1/07 – 5/31/08

Amount: \$261,605

Sponsor: Automated Float Glass Industries

Title: Optimization and Simulation of Automated Float Glass Lines

Dates: 9/01/07 – 10/31/09

Amount: \$119,071

Sponsor : Exxon Research and Engineering

Title: Large-scale Mixed Integer Programming for Logistics (with Martin Savelsbergh)

Dates: 04/01/08 – 06/30/2010

Amount: \$327,748

Sponsor: Exxon Corporation

Title: Solving Nonconvex Network Flow Problems

Dates: 9/01/03 – 9/30/2011

Amount: \$130,000

Sponsor: NSF

Title: Integer Programming Under Uncertainty (with S. Ahmed)

Dates: 5/01/08 – 4/30/11

Amount: \$380,000

Sponsor: AFOSR

Title: Combining Exact and Heuristic Approaches for Discrete Optimization (with M. Savelsbergh)

Dates: 2/15/09 – 11/30/11

Amount: \$475,104

Sponsor: US Army

Title: Asset Allocation and Logistics Decision Support Tool

Dates: 9/23/09 – 11/30/10

Amount: \$131,917

Sponsor: Sefofane

Title: Optimizing Sefofane's Flight Scheduling (with M. Savelsbergh)

Dates: 9/01/09 – 3/31/11

Amount: \$100,303

Sponsor: ExxonMobil Research

Title: Very Large-scale Mathematical Programming for Logistics (with J. Sokol)

Dates: 4/01/10-5/31/11

Amount: \$170,212

Sponsor: Samsung
Title: Real-time Vehicle Routing with Accurate Delivery Time Estimates (with S. Ahmed and J. Sokol)
Dates: 6/7/11-6/6/12
Amount: \$200,043

Sponsor: Samsung
Title: Real-time Vehicle Routing with Accurate Delivery Time Estimates yr. 2 (with S. Ahmed and J. Sokol)
Dates: 6/15/2012-6/14/2013
Amount: \$210,077

Sponsor: ExxonMobil Research and Engineering (Downstream)
Title: Very Large Scale and Robust Discrete Optimization (with J.Sokol)
Dates: 4/1/2011-5/31/2014
Amount: \$384,356

Sponsor: Samsung
Title: Design of Rail Layout and Routing Policies (with S. Ahmed and J. Sokol)
Dates: 10/10/2013-9/29/2014
Amount: \$271,674

Sponsor: Exxon Mobil Research and Engineering (Upstream)
Title: High Performance Computing Based Algorithms for Mixed Integer Programming (with S. Ahmed and D. Bader)
Dates: 12/19/2011 – 12/ 31/2015
Amount: 638,328

Sponsor: AFOSR
Title: New Approaches for Very Large-Scale Integer Programming
Dates: 04/01/2012- 03/31/2016
Amount: 520,806

Sponsor: NSF
Title: Eager: Discrete Optimizations Algorithms for 21st Century Algorithms (with S. Dey and S. Vempala)
Dates: 03/01/2014- 02/29/17
Amount: 300,000

Sponsor: ONR
Title: Distributed Integer Programming (with S. Ahmed)
Dates: 03/01/2015 -02/28/2018
Amount: 199,454 (first year), 162, 258(second year), 209,169 (third year) 570,881 (total)

Sponsor: Exxon Mobil Research and Engineering (Upstream)
Title: Leveraging Machine Learning and High Performance Computing for Mized-Integer Programming (with S. Ahmed, D. Bader and B. Dilinka)
Dates: 12/07/2015 – 12/31/2016
Amount: 191,402

Sponsor: Samsung Electronics
Title: Lot Dispatcher and Lot Arranger Decision Policies (with S. Ahmed, D. Nazal and J. Sokol)

Dates: 09/01/2015 – 01/31/2017
Amount: 149,718

Sponsor: Exxon Mobil Research and Engineering (Upstream)
Title: Leveraging Machine Learning and High Performance Computing for Mized-Integer Programming
(with S. Ahmed, D. Bader and B. Dilinka)
Dates: 01/01/2017 – 12/31/2017
Amount: 214,538

Sponsor: NSF
Title: Dynamic Discretization Discovery: Solving Discrete Time Integer Programs
(with N. Boland, M. Savelsbergh)
Dates: 05/15/2017 – 04/30/2020
Amount 598,729

Sponsor: ONR
Title: A Unified Framework for Distributed Stochastic Optimization (with S. Ahmed)
Dates: 03/01/2018 -02/28/2021
Amount: 642,125

VII. HONORS

National Science Foundation Senior Faculty Fellowship recipient, 1969.
Chosen three times as one of eight best instructors in the School of Arts and Sciences of the Johns Hopkins University by the student "Course Guide."
Selected in the group of top 10% of instructors in Cornell's College of Engineering (1980-1981)
Listed in American Men of Science, Who's Who in the East, Who's Who in American Education, Who's Who in Engineering, Who's Who in America (42nd edition, forthcoming)
Member of Tau Beta Pi (Engineering Honor Society)
Lanchester Prize of the Operations Research Society of America for the best paper in Operations Research published in 1977
Awarded a Chair at Cornell (Leon C. Welch Professor, 1985)
Awarded a Chair at Georgia Tech (Russell Chandler Professor, 1985)
Member of National Academy of Engineering, 1986
Kimball Medal of Operations Research Society of America, 1988
Lanchester Prize of the Operations Research Society of America in 1990
(only person to received this prize twice)
Morse Lectureship of the Operations Research Society of America in 1991
Appointed as Institute Professor in 1992
Selected as Engineering Alumnus of 1999, Northwestern University
INFORMS Fellow 2002
Distinguished Alumni Award, Northwestern University, Industrial Engineering and Management Science Dept., 2007
INFORMS Optimization Society, inaugural Khachiyani Prize for lifetime achievements in optimization, 2010
INFORMS John von Neumann theory prize, 2012
Canadian Operational Research Society, Harold Lardner Prize, 2012
University of Illinois ISE Distinguished Lecture Series in Operations Research, 2015
Class of 1934 Distinguished Professor Award (the highest award given to a Georgia Tech faculty member)
Medal of Achievement, University of Montreal, 2016
Honorary Doctorate, University of Louvain, 2016
Nemfest Celebration, 2017

