MOUSTAPHA DIABY

School of Business
University of Connecticut
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EDUCATION

Ph.D.   Management Science/Operations Research
            University at Buffalo – The State University of New York

M.S.   Industrial Engineering/Operations Research
            University at Buffalo – The State University of New York

B.S.   Chemical Engineering
            University at Buffalo – The State University of New York

RESEARCH

Interests

- Mathematical Programming

- Manufacturing Systems Modeling and Analysis

- Logistics and Distribution Management

- Supply Chain Management

- Project Management

Refereed Book

Diaby, M. and M.H. Karwan, <u>Advances in combinatorial optimization: Polynomial-sized linear programs for the traveling salesman and other hard combinatorial optimization problems</u>, World Scientific Publishing (April 2016; Singapore).

Refereed Journal Publications

Diaby, M., M.H. Karwan, and L. Sun, "On modelling hard combinatorial optimisation problems as linear programs: Refutations of the 'unconditional impossibility' claims," *International Journal of Operational Research* 40:2 (2021), pp. 261-278.

Sun, L., M.H. Karwan, and M. Diaby, "The indefinite-period traveling salesman problem" *European Journal of Operational Research* 270:3 (November 2018), pp. 1171-1181.

Diaby, M. and M.H. Karwan, "Limits to the scope of applicability of *extended formulations,*" *International Journal of Mathematics in Operational Research* 10:1 (2017).

Cao, Y., A.L. Nsakanda, M. Diaby, and M.J. Armstrong, "Rewards-supply planning under option contracts in managing coalition loyalty programs," *International Journal of Production Research* 53:22 (2015), pp. 6772-6786.

Cao, Y., A.L. Nsakanda, and M. Diaby, "Planning the supply of rewards with cooperative promotion considerations in coalition loyalty programmes management," *Journal of the Operational Research Society* (2014), pp. 1-15.

Diaby, M., J.M. Cruz, and A.L. Nsakanda, "Shortening cycle times in multi-product, capacitated production environments through quality level improvements and setup reduction," *European Journal of Operational Research* 228 (2013), pp. 526-535.

Diaby, M., "Editorial: Solving large-scale and stochastic linear programs," *International Journal of Mathematics in Operational Research* 4:4 (2012), pp. 317-318.

Cao, Y., Nsakanda, A. L., M. Diaby, "A stochastic linear programming modeling and solution approach for planning the supply of rewards in loyalty rewards programs," *International Journal of Mathematics in Operational Research* 4:4 (2012), pp. 400-421.

Diaby, M., J.M. Cruz, and A.L. Nsakanda, "Project crashing in the presence of general non-linear activity time reduction costs," *International Journal of Operational Research* 12:3, (2011) pp.318–332.

Nsakanda, A.L., M. Diaby, and Y. Cao, "A Model for Predicting Redemption and Liability in the Loyalty Rewards Industry," *Information System Frontiers* 13 (2011), pp. 707–719.

Nsakanda, A.L., M. Diaby, Y. Cao, "Solving Capacitated Part-Routing Problems With Setup Times and Costs: A Dantzig-Wolfe Decomposition Approach," *International Transactions in Operations Research* 18 (2010), pp. 71-86.

Diaby, M., "Linear Programming Formulation of the Set Partitioning Problem," *International Journal of Operational Research* 8:4 (August 2010) pp. 399-427.

Nsakanda, A.L., M. Diaby, and W.L. Price, "A Price-Directed Decomposition Approach for Solving Large-Scale Capacitated Part-Routing Problems," *International Journal of Production Research* 48:14 (July 15, 2010), pp. 4273-4295.

Diaby, M., "Linear Programming Formulation of the Vertex Coloring Problem," *International Journal of Mathematics in Operational Research* 2:3 (May 2010) pp. 259- 289.

Nsakanda, A.L., W.L. Price, M. Diaby, and M. Gravel, "Ensuring Population Diversity in Genetic Algorithms," *European Journal of Operational Research* 178:2 (April 2007) pp. 634-638.

Diaby, M., "The Traveling Salesman Problem: A Linear Programming Formulation," *WSEAS Transactions on Mathematics* 6:6 (June 2007) pp. 745-754.

Nsakanda, A.L., M. Diaby, and W.L. Price, "A Hybrid Genetic Algorithm for Solving Large-Scale Capacitated Cell Formation Problems With Multiple Routings," *European Journal of Operational Research* 171:3 (June 2006) pp. 1051-1070.

Anteneh, A., M. Diaby, and S.K. Nair, "Inventory rationing via drop-shipping in Internet retailing: A Sensitivity Analysis," *European Journal of Operational Research* 171:1 (May 2006) pp. 135-152.

Diaby, M., and A.L. Nsakanda, "Large-Scale Capacitated Part-Routing in the Presence of Process and Routing Flexibilities and Setup Costs," *Journal of the Operational Research Society* 57:9 (Sept. 2006) pp. 1100-1112.

Campbell, G.L., and M. Diaby, "Development and Evaluation of an Assignment Heuristic for Allocating Cross-Trained Workers," *European Journal of Operational Research* 138:1 (April 2002) pp. 9-20.

Diaby, M., "Integrated Batch Size and Setup Reduction Decisions in Multi-Product, Dynamic Manufacturing Environments," *International Journal of Production Economics* 67:3 (October 2000) pp. 219-233.

Padillo, J.M., and M. Diaby, "A Multiple-Criteria Decision Methodology for the Make-or-Buy Problem," *International Journal of Production Research* 37:4 (Fall 1999) pp. 3203-3229.

Diaby, M., and J.M. Martel, "Preference Structure Modelling for Multi-Objective Decision-Making: A Goal Programming Approach," *Multi-Criteria Decision Analysis* 6 (1997).

Diaby, M., "Optimal Setup Time Reduction for a Single Product with Dynamic Demands," *European Journal of Operational Research* 85:3 (Fall 1995).

Martel, A., M. Diaby, and F.F. Boctor, "Multiple Items Procurement Under Stochastic Nonstationary Demands," *European Journal of Operational Research* 87 (Fall 1995) pp. 74-92.

Ramesh, R., and M. Diaby, "The Distribution Problem With Carrier Service: A Dual Based Penalty Approach," *Journal on Computing* 7:1 (Winter 1995) pp. 24-35.

Diaby, M., "Managing Technology and Innovation," *Operations Management Review* 10:3 (October 1994).

Diaby, M., "Efficient Post-Optimization Analysis for the Dynamic Lot-Sizing Problem," *European Journal of Operational Research* 68:1 (July 1993).

Diaby, M., "Implicit Enumeration for the Pure Integer 0/1 Minimax Programming Problem," *Operations Research* 41:6 (Nov.-Dec. 1993).

Diaby, M., and A. Martel, "Dynamic Lot-Sizing for Multi-Echelon Distribution Systems With Purchasing and Transportation Price Discounts," *Operations Research* 41:1 (Jan. 1993) pp. 48-59.

Diaby, M., H.C. Bahl, M.H. Karwan, and S. Zionts, "A Lagrangean Relaxation Approach for Very-Large-Scale Capacitated Lot-Sizing," *Management Science* 38:9 (Sept. 1992) pp. 1329-1340.

Diaby, M., H.C. Bahl, M.H. Karwan, and S. Zionts, "Capacitated Lot-Sizing and Scheduling by Lagrangean Relaxation," *European Journal of Operational Research* 59:3 (June 1992) pp. 444-458.

Diaby, M., "Successive Linear Approximation Procedure for Generalized Fixed-Charge Transportation Problems," *Journal of the Operational Research Society* 42:11 (1991) pp. 991-1001.

Refereed Proceedings Publications

Diaby, M. and A.L. Nsakanda, "Dynamic Lot-sizing in a Reverse Logistics Environment", Proceedings of the North-East Decision Sciences Annual Conference. (March 27, 2014 - March 29, 2014)

Cao, Y., A.L. Nsakanda, and M. Diaby, "Planning the Supply of Rewards in Loyalty Reward Programs – A Supply Chain Perspective," Proceedings of the 2010 DSI Annual Conference, San Diego, California, November 20-23, 2010.

Cao, Y., A.L. Nsakanda, and M. Diaby, "Aggregate Planning of rewards-supply in loyalty rewards programs," Proceedings of the 2010 ASAC Conference, Regina, Canada, May 22-25, 2010.

Cao, Y., A.L. Nsakanda, and M. Diaby, "Coping with the Planning of Reward Supply in Loyalty Reward Programs – A Mathematical Model," Proceedings of the POMS 21rst Annual Conference, Vancouver, Canada, May 7-10, 2010.

Nsakanda, A.L., M. Diaby, and Y. Cao, "A Predictive Model of Redemption and Liability in the Loyalty Rewards Industry," Proceedings of the Hawaii International Conference on System Science 43, Honolulu, Hawaii, January 2010.

Diaby, M., and A.L. Nsakanda, "Coping With Revenue Recognition in the Loyalty Reward Program Industry: A Stochastic Modeling Approach," Proceedings of the 2008 American Conference on Applied Mathematics, Boston, MA, March 22-24, 2008.

Cruz, J.M., Diaby, M., and A.L. Nsakanda, "Geometric Programming Model of the Lot-Scheduling Problem With Investments in Setup Reductions and Process Improvements," Proceedings of the 2008 American Conference on Applied Mathematics, Boston, MA, March 22-24, 2008.

Nsakanda, A.L., M. Diaby, and W.L. Price, "An Empirical Comparison of Cross-Over Operators for the Manufacturing Cell Formation Problem," Proceedings of the 2007 DSI Annual Conference, Phoenix, AZ, Nov. 17-20, 2007.

Diaby, M., "A Linear Programming Formulation of the Traveling Salesman Problem," <u>Proceedings of the 11th W SEAS International Conference on Applied Mathematics</u> (Dallas, TX, March 21-23, 2007).

Diaby, M., "On the Equality of Complexity Classes P and NP: Linear Programming Formulation of the Quadratic Assignment Problem," <u>Proceedings of the International Multi-conference of Engineers and Computer Scientists</u> (Hong Kong, June 20-22, 2006), pp. 774-779.

Nsakanda, A.L., M. Turcotte, and M. Diaby, "Air Cargo Operations Evaluation and Analysis Through Simulation," <u>Proceedings of the 2004 Winter Simulation Conference</u> (2004).

Nsakanda, A.L., and M. Diaby, "Selecting Production Plans in Cellular Manufacturing Systems with Setup Costs: Formulation and Solution Methodology," <u>Proceedings of the 2004 Decision Science Institute Conference</u> (October 2004; Boston, MA).

Padillo, J.M., and M. Diaby, "A Multiple-Criteria Decision Methodology for Time- Dependent Problems in Operations/Technology Management," <u>Proceedings of the 8th Annual Industrial Engineering Research Conference</u> (May 1999, Phoenix, AZ).

Diaby, M., "Shortening Manufacturing Cycle Times Through Setup Reductions and Quality Level Improvements," <u>Proceedings of the ASME</u> (November 1997, Dallas, Texas).

Diaby, M., and J.M. Martel, "A Goal Programming Approach to Modeling the Decision Maker's Preferences for Multi-Objective Decision Making," <u>Proceedings of the DSI National Conference</u> (1992, San Francisco, CA) pp. 1085-1087.

Diaby, M., and A. Martel, "Joint Replenishment for Multi-Echelon Physical Distribution Systems with Purchasing and Transportation Price Discounts," <u>Proceedings of the DSI National Conference</u> (1991, Miami, FL) pp. 1329-1332.

Martel, A., and M. Diaby, and F. Boctor, "Efficient Approximations for Dynamic, Nonstationary, Lot-Sizing Problems," <u>Proceedings of the W estern DSI Conference</u> (1991, San Francisco, CA).

Diaby, M., "Sensitivity Analysis for the Dynamic Lot-Sizing Problem," <u>Proceedings of the SE - TIMS Conference</u> (1990, Myrtle Beach, SC) pp. 320-323.

Book Chapter

Diaby, M., "Linear programming formulation of the multi-depot multiple traveling salesman problem with differentiated travel costs." In D. Davendra (*ed.*), <u>Traveling Salesman Problem, Theory and Applications</u> (2010, InTech, New York, NY) pp. 257-282.

Conference Presentations

More than seventy-five (75) presentations at conferences of professional organizations such as ASAC, CORS, DSI, EURO, IFORS, IMECS, INFORMS, OMA, SIAM, and WSEAS.

Grants

- University of Connecticut: $6,000; Individual; 2021;
- University of Connecticut: $5,000; Individual; 2019;
- University of Connecticut: $22,000; Individual; 2018;
- University of Connecticut: $20,000; Individual; 2017;
- University of Connecticut: $20,000; Individual; 2016;
- University of Connecticut: $15,000; Individual; 2015;
- University of Connecticut: $10,000; Individual; 2013;
- University of Connecticut: $12,500; Individual; 2010;
- University of Connecticut: $15,000; Individual; 1994;
- Arizona State University: $10,000; Individual; 1993;
- NSERC (Canada): $30,000; Individual; 1988-1990;
- *NRC (Canada)*: $300,000; Research Group; 1988-1990.

TEACHING

Courses developed and taught

- "Large-Scale Optimization" (Ph.D.)
- "Special Topics in Mathematical Programming" (Ph.D.)
- "Doctoral Seminar in Production and Operations Management" (Ph.D.)
- "Facilities Design and Manufacturing Technology" (Ph.D. & MBA/MS)
- "Business Decision Modeling" (MS/MBA)
- "Management of International Development Projects" (MBA/MS)
- "Introduction to Managerial Statistics" (MBA)
- "Introduction to Production and Operations Management" (MBA))
- "Introduction to Production and Operations Management" (MBA; Online)
- "Introduction to Production and Operations Management" (Undergraduate)
- "Introduction to Manufacturing Systems" (Undergraduate)
- "Introduction to Operations Research" (Undergraduate)
- "Introduction to Probability and Statistics" (Undergraduate)
- "Inventory and Distribution Management" (Undergraduate)
- "Industrial Quality Control" (Undergraduate)
- "Industrial Quality Control" (Undergraduate; Online)

SERVICE ACTIVITIES

University/School/Department Committees

- Member, University Graduate Faculty Council

- University McNair Scholars Faculty Mentor

- Speaker, University of Connecticut AAUP Representatives Assembly

- Chair, University of Connecticut AAUP Benefits Subcommittee

- Member, University of Connecticut AAUP Governance Subcommittee

- Member, University of Connecticut Contract Committee

- Member, University of Connecticut AAUP Representatives Assembly

- Vice-President, SBA Faculty Council for the Beta, Gamma, Sigma Honor Society

- Member, SBA Diversity Initiative Committee

- Treasurer, SBA Faculty Council for the Beta, Gamma, Sigma Honor Society

- Department Faculty Evaluation Committee

- Department Merit Review Committee

- Department Ph.D. Committee

- MEM Advisory Board

- MEM Curriculum Development Committee

- Department Honors Committee

- Co-Chair, Business/Engineering Post-Baccalaureate Degree Program

- SBA Faculty Development Committee

- SBA Dialog Committee

- Department Faculty Recruiting Committee

- Department Ph.D. Recruiting Committee

- Department Promotion and Tenure Committee

- MBA-Track-in-OPM Committee

- MBA-Core Committee

- Undergraduate Strategic Planning Committee

- Department Graduate Student Recruiting Committee

- Department Grant Allocation Committee

- Graduate Curriculum Committee

Professional Societies

- Plenary Speaker: American Conference on Applied Mathematics, Harvard Business School, Boston, MA, March 2008

- "Feature Speaker:" First Atlantic Operational Research Symposium, Halifax, NS, 1995

- Chair, INFORMS Student Affairs Committee, 1995-1997
- Chair, ORSA Student Affairs Committee, 1994-1995
- Chair, Local Arrangements, INFORMS 1993 Annual Meeting, Phoenix, Arizona
- Member, ORSA Nicholson Prize Committee, 1993-1997
- Member, ORSA Student Affairs Committee, 1993-1994

- Ad Hoc Session Chair, ORSA/TIMS, TIMS, DSI, *INFORMS*, IFORS, OMA

Editorial Services

- Guest Editor, **International Journal of Mathematics in Operational Research:** Special Issue on *Recent Developments in Solving Large-Scale Linear Programming Problems*.

- Associate Editor: **Journal of Industrial Engineering**

- Guest Associate Editor, **Annals of Operations Research:** Special Issue on the *Interface of OR and IS*.

- Editorial Board Member, **Logistics.**

- Editorial Board Member, **International Journal of Mathematics and Statistics.**

- Editorial Board Member, **The Scientific World Journal**.

- Editorial Board Member, **International Journal of Quality Science**.

- Member, **NSF Review Panel for Design, Manufacture, and Industrial Innovation**.

- *Ad Hoc* Reviewer for:
  - *Annals of Operations Research*
  - *Applied Mathematical Modelling*
  - *Computers and Industrial Engineering*
  - *Computers and Operations Research*
  - *DEA Journal*
  - *Decision Sciences Journal*
  - *Discrete Optimization*
  - *Engineering Applications of Artificial Intelligence*

- *European Journal of Operational Research*
- *Expert Systems With Applications*
- *IIE Transactions*
- *INFOR*
- *International Journal of Computer Mathematics*
- *International Journal of Operational Research*
- *International Journal of Production Economics*
- *International Journal of Production Research*
- *Journal of Industrial Engineering*
- *Journal of Scheduling*
- *Journal of the Operational Research Society*
- *Kuwait Journal of Science and Engineering*
- *Management Science*
- *Mathematical Problems in Engineering*
- *Mathematical Programming*
- *Multi-Criteria Decision Analysis*
- *Naval Research Logistics*
- *Networks and Spatial Economics*
- *NSERC (Canada)*
- *NSF*
- *Omega*
- *Operations Research Transaction Journal for Engineering and Industry*
- *Transportation Science*
- *World Scientific Journal*
- *WSEAS Transactions on Mathematics*