

Diego Klabjan

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General Interests

- Sustainability
- Transportation
- Supply Chain Management
- Retail
- Large-scale Optimization

Education

- **Ph. D. in Algorithms, Combinatorics, and Optimization**
Georgia Institute of Technology, Atlanta, GA 1999
Dissertation: Topics in Airline Crew Scheduling and Large Scale Optimization (*Advisors:* George Nemhauser and Ellis Johnson)
- **B.S. in Applied Mathematics**
University of Ljubljana, Ljubljana, Slovenia 1994
Dissertation: A Randomized Algorithm for Computing the Volume of a Convex Set (*Advisor:* Bojan Mohar)

Awards

- Preseren's Award for the Best Undergraduate Thesis, University of Ljubljana, Slovenia, 1994
- First Prize Transportation Science Section Dissertation Prize, INFORMS, 2000
- Anna Valicek Medal Winner, AGIFORS 2004 (by graduate student Rivi Sandhu)
- 2006 Best Student Paper, The 22nd International Conference on Data Engineering, Atlanta, GA (by graduate student Hector Gonzales)

Employment Background

- **2007-present:** Associate professor, Northwestern University, Department of Industrial Engineering and Management Sciences, Evanston, Illinois
- **2006-2007:** Associate professor, University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering, Urbana, Illinois
- **2005-2006:** Visiting professor, MIT, Department of Civil and Environmental Engineering, Cambridge, Massachusetts
- **1999-2005:** Tenure-track assistant professor, University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, Urbana, Illinois

Publications

1. S. Chang, D. Klabjan, and T. Vossen (2010), Optimal Radio Frequency Identification Deployment in a Supply Chain Network. To appear in *International Journal of Production Economics*.

2. L. Schenk and D. Klabjan (2010), Intra Market Optimization for Express Package Carriers with Station to Station Travel and Proportional Sorting. To appear in *Computers & Operations Research*.
3. J. Pei and D. Klabjan, Inventory Control in Serial Systems under Radio Frequency Identification. *International Journal of Production Economics* 123 (2010) 118-136.
4. S. Choo, D. Klabjan and D. Simchi-Levi (2009), Multi-ship Crane Sequencing with Yard Congestion Constraints. To appear in *Transportation Science*.
5. H. Gonzalez, J. Han, H. Cheng, X. Li, D. Klabjan and T. Wu, Modeling Massive RFID Datasets: A Gateway-Based Movement-Graph Approach. *IEEE Transactions on Knowledge and Data Engineering* 22 (2010) 90-104.
6. B. Almada-Lobo, D. Klabjan, M.A. Carravilla and J.F. Oliveira (2007), Multiple Machine Multi-Item Continuous Setup Lotsizing with Sequence-dependent Setups. To appear in *Computational Optimization and Applications*.
7. L. Schenk and D. Klabjan, Intra Market Optimization for Express Package Carriers. *Transportation Science* 42 (2008) 530-545.
8. N. Halman, D. Klabjan, M. Mostagir, J. Orlin, D. Simchi-Levi, A Fully Polynomial Time Approximation Scheme for Single-Item Stochastic Inventory Control Problems with Discrete Demand. *Mathematics of Operations Research* 34 (2009) 674-685.
9. D. Klabjan, Subadditive Approaches in Integer Programming. *European Journal of Operational Research* 183 (2007) 525-545.
10. B. Almada-Lobo, D. Klabjan, M.A. Carravilla, J.F. Oliveira, Single Machine Capacitated Lotsizing Problem with Sequence-dependent Setup Costs and Times. *International Journal of Production Research* 45 (2007) 4873-4894.
11. J. Han, H. Gonzales, X. Li, and D. Klabjan, Warehousing and Mining Massive RFID Data Sets, *Lecture Notes in Computer Science* 4093 (2006) 1-18.
12. D. Klabjan and D. Adelman, A Convergent Infinite Dimensional Linear Programming Algorithm for Deterministic Semi-Markov Decision Processes on Borel Spaces. *Mathematics of Operations Research* 32 (2007) 528-550.
13. P. Bless, D. Klabjan, and S. Chang, Heuristics for Automated Knowledge Source Selection and Service Composition. *Computers and Operations Research* 35 (2008) 1292-1314.
14. R. Sandhu and D. Klabjan, Fleeting with Passenger and Cargo Origin-Destination Booking Control. *Transportation Science* 40 (2006) 517-528.
15. R. Sandhu and D. Klabjan, Integrated Airline Fleeting and Crew Pairing Decisions. *Operations Research* 55 (2007) 430-438.
16. D. Klabjan and D. Adelman, Existence of Optimal Policies for Semi-Markov Decision Processes Using Duality for Infinite Linear Programming, *SIAM Journal on Control and Optimization* 44 (2006) 2104-2122.
17. S. Shebalov and D. Klabjan, Robust Airline Crew Pairing: Move-up Crews, *Transportation Science* 40 (2006) 300-312.
18. S. Shebalov and D. Klabjan, Sequence Independent Lifting for Mixed Integer Programs with Variable Upper Bounds. *Mathematical Programming* 105 (2006) 523-561.
19. P.N. Bless, S.G. Kapoor, R.E. DeVor, and D. Klabjan, An Algorithmic Strategy for Automated Development of Multi-component Software Tools for Virtual Manufacturing. *Journal of Manufacturing Science and Engineering* 127 (2005) 866-874.
20. D. Adelman and D. Klabjan, Existence of Optimal Policies and Duality in Generalized Joint Replenishment. *Mathematics of Operations Research* 30 (2005) 28-50.
21. D. Klabjan, A Practical Algorithm for Computing the Subadditive Dual Function for Set Partitioning. *Computational Optimization and Applications* 29 (2004) 347-368.
22. A. Makri and D. Klabjan, Algorithms for Source-to-all Maximum Cost to Time Ratio Problem in Acyclic Networks. *Networks* 42 (2003) 1-14.
23. D. Klabjan, E.L. Johnson, and G.L. Nemhauser, Airline Crew Scheduling with Time Windows and Plane Count Constraints, *Transportation Science* 36 (2002) 337-348.
24. D. Klabjan and G.L. Nemhauser, A Polyhedral Study of Integer Variable Upper Bounds. *Mathematics of Operations Research* 27 (2002) 711-739.
25. A. Arora and D. Klabjan, A Model for Budget Allocation in Multi-unit Libraries. *Library Collections, Acquisitions, and Technical Services* 26 (2002) 423-438.
26. A. Makri and D. Klabjan, A New Pricing Scheme for Airline Crew Scheduling, *INFORMS Journal on Computing* 16 (2004) 56-67.

27. D. Klabjan, E.L. Johnson, and G.L. Nemhauser, Solving Large Airline Crew Scheduling Problems: Random Pairing Generation and Strong Branching, *Computational Optimization and Applications* 20 (2001) 73-91.
28. D. Klabjan, E.L. Johnson, and G.L. Nemhauser, Airline Crew Scheduling with Regularity, *Transportation Science* 35 (2001) 359-374.
29. D. Klabjan, E.L. Johnson, and G.L. Nemhauser, A Parallel Primal-Dual Simplex Algorithm, *Operations Research Letters* 27 (2000) 47-55.
30. D. Klabjan and B. Mohar, The Number of Matchings of Low Order in Hexagonal Systems, *Discrete Mathematics* 186 (1998) 167-175.
31. D. Klabjan, C. Tovey, and G.L. Nemhauser, Cover Inequality Separation is NP-hard, *Operations Research Letters* 23 (1998) 35-40.

Chapters in Books

- Y-C. Lee, D. Klabjan, G. Stojkovic (2009), Crew Management Information Systems. In B. Smith and C. Barnhart, editors.
- C. Taylor, D. Klabjan, and H. Mamani (2008), Advanced Optimization for Interplanetary Logistics. In O. de-Weck and B. Shisko, editors, *Interplanetary Supply Chain Management and Logistics Architecture*.
- C. Barnhart, A. Cohn, E.L. Johnson, D. Klabjan, G.L. Nemhauser, and P. Vance (2002), Airline Crew Scheduling. In Hall, R.W., editor, *Handbook in Transportation Science*, Kluwer Scientific Publishers.
- D. Klabjan (2005), Large-scale Models in the Airline Industry. In G. Desaulniers, J. Desrosiers, M.M. Solomon, editors, *Column Generation*, Kluwer Academic Publishers.
- D. Klabjan (2007), Radio Frequency Identification Enabled Business Applications in Supply Chain Management. In T. Blecker and G. Huang, editors, *RFID in Operations and Supply Chain Management: Research and Applications*, Erich Schmidt Verlag.

Conference Proceedings

- C. Cheng, C. Chekuri, and D. Klabjan (2009), "Topology Formation for Wireless Mesh Network Planning", *Proceedings of IEEE Infocom 2009 Mini-conference*, Rio de Janeiro, Brazil.
- N. Halman, D. Klabjan, C-L. Li, J. Orlin, and D. Simchi-Levi (2008), "Fully Polynomial Time Approximation Schemes for Stochastic Dynamic Programs", *Proceedings of ACM-SIAM Symposium on Discrete Algorithms*, San Francisco, CA.
- J. Pei and D. Klabjan (2007), "Inventory Control in Serial Systems under RFID", *EPC Connection Academic Convocation*, Chicago, IL.
- D. Klabjan (2007), "Radio Frequency Identification Enabled Business Applications in Supply Chain Management", *Proceedings of RFID Live 2007 Academic Convocation*, Orlando, FL.
- J. Han, H. Gonzalez, X. Li, and Diego Klabjan (2006), "Warehousing and Mining Massive RFID Data Sets", *Proceedings of the International Conference on Advanced Data Mining and Applications*, Xi'An, China.
- H. Gonzales, J. Han, X. Li, and D. Klabjan (2006), "Warehousing and Analyzing Massive RFID Data Sets", *Proceedings of the 22nd International Conference on Data Engineering*, Atlanta, GA.
- R. Sandhu and D. Klabjan (2004), Integrated Airline Planning, *Proceedings of TRISTAN V*.
- D. Klabjan and K. Schwan (2001), Airline Crew Pairing Generation in Parallel, *Proceedings of the 10th SIAM Conference on Parallel Processing for Scientific Computing*.
- D. Klabjan (2002), A New Subadditive Approach to Integer Programming: Theory and Algorithms, *Proceedings of the 9th Integer Programming and Combinatorial Optimization Conference*, 384-400.
- D. Klabjan, A. Schaefer, E.L. Johnson, A. Kleywegt, and G.L. Nemhauser (2001), Robust Airline Crew Scheduling, *Proceedings of TRISTAN IV*, 275-280.
- S. Chebalov and D. Klabjan (2002), Robust Airline Crew Scheduling: Move-up Crews. *Proceedings of the 42nd Annual AGIFORS Symposium*.

Submitted Manuscripts

- C. Almeder, D. Klabjan, and B. Almada-Lobo (2009), Lead Time Considerations for the Multi-Level Capacitated Lot-sizing Problem.
- A. Seth, D. Klabjan and P. Ferreira (2009), Analyses of Advanced Iterated Tour Partitioning Heuristics for Generalized Vehicle Routing Problems.
- A. Seth, D. Klabjan and P. Ferreira (2009), Assembly Optimization for High-Volume High-Flexibility Robotic PCB Assembly.
- A. Seth, D. Klabjan and P. Ferreira (2009), A Novel Local Search Integer-Programming-Based Heuristic for PCB Assembly on Collect-and-Place Machines.
- D. Adelman and D. Klabjan (2009), Computing Near Optimal Policies in General Joint Replenishment.
- L. Li, C.S. Pun, D Klabjan (2008), Single Item Lot-Sizing Problem with Minimum Order Quantity.
- D. Klabjan (2008), Algorithms for Lot Sizing with Supplier Selection.
- J. Ahn, O. de Weck, Y. Gang and D. Klabjan (2008), The Generalized Location Routing Problem with Profits.
- M. Sohoni, Y-C. Lee, D. Klabjan (2008), Block Time Estimation and Robust Airline Scheduling.
- O. de Weck, D. Klabjan, C. Taylor, D. Simchi-Levi, J. Ahn, E. Gralla, S. Shull (2008), Interplanetary Supply Chain Management and Logistics at NASA.
- D. Klabjan and J. Pei (2008), In-store One-to-one Marketing.
- C. Kim, D. Klabjan and D. Simchi-Levi (2007), Optimal Expediting Policies for an Inventory System with Stochastic Lead Time under Radio Frequency Identification.
- M. Song, D. Klabjan, D. Simchi-Levi (2007), Robust Stochastic Lot-sizing by Means of Histograms.
- N. Halman, D. Klabjan, C-L. Li, J. Orlin and D. Simchi-Levi (2008), Fully Polynomial Time Approximation Schemes for Convex and Monotone Stochastic Dynamic Programming.
- C. Kim, D. Klabjan, and D. Simchi-Levi (2006), Optimal Policy for Expediting Orders in Transit.
- D. Klabjan (2005), Economic Order Quantity for Business-to-Consumer Fulfillment.
- Y. Jiang and D. Klabjan (2005), Business-to-Consumer Single Period Fulfillment Strategies.
- S. Shebalov and D. Klabjan (2006), Lifting for Mixed Integer Programs with Variable Upper Bounds.
- P. Bless, D. Klabjan, and S. Chang (2006), Automated Knowledge Source Selection and Service Composition.
- Y. Zhao and D. Klabjan (2005), A Polyhedral Study of Lot-sizing with Supplier Selection (under revision).
- M. Bundschuh, D. Klabjan, P. Pei, and D. Thurston (2005), Modeling Robust and Reliable Supply Chains.

Magazine Publications

- C. Taylor, M. Song, D. Klabjan, O. de Weck, D. Simchi-Levi, A Mathematical Model for Interplanetary Logistics, *Logistics Spectrum* 41 (2007), Issue 1, January-March, pages 23-33.
- D. Klabjan, R. Joshi, Harvesting Smart Grid Benefits, *M2M* 7 (2009), September-October, page 40.

Grants and Contracts

- Wavelength Cost Optimization Tool, PI Diego Klabjan, *Level 3 Communication LLC*
- Integrated Airline Recovery, PI Diego Klabjan, *Sabre Holdings*
- Strategic Gang Scheduling, PI Diego Klabjan, *Norfolk Southern and Department of Transportation*
- Business Intelligence for FUM-to-DCC Conversion, PI Diego Klabjan, *Ryder Systems Inc.*
- Consolidation in Logistics, PI Diego Klabjan, *W.W. Grainger*
- Business Intelligence in Retailing, PI Diego Klabjan, *Predictix Inc.*

- Algebraic Modeling in DataLog, PI Diego Klabjan, *LogicBlox Inc.*
- Approximate Dynamic Programming in Complex Multi-Echelon Inventory and Production Systems, PI Diego Klabjan, *NSF*
- Highway Maintenance Staffing Levels, co-PI Diego Klabjan, *Illinois Department of Transportation*
- Regional Data Archiving and Management, PI Diego Klabjan, *Illinois State Toll Highway Authority and Illinois Department of Transportation*
- Intra Market Optimization, PI Diego Klabjan, *FedEx Express*
- One-to-one Marketing with RFID, PI Diego Klabjan, *Intel.*
- Robust Airline Crew Scheduling: Move-up Crews, PI Diego Klabjan, *NSF*
- Duality in Integer Programming, PI Diego Klabjan, *NSF*
- Next Generation Crew Pairing Optimization, PI Diego Klabjan, *Sabre Holdings*
- Multi-unit Library Budget Allocation, PI Diego Klabjan, *University of Illinois Library System*
- Crew Scheduling with Regularity, PI Diego Klabjan, *University of Illinois Research Board*

Invited Lectures

- 2000-2003: *SUNY Buffalo*, Industrial Engineering; *University of Chicago*, Graduate School of Business; *MIT*, OR Center Seminar Series; *University of California, Berkeley*, Civil and Environmental Engineering Seminar Series; *University of Michigan*, Industrial and Operations Engineering;
- 2004-2007: *Stanford*, Management Science and Engineering; *Princeton University*, Operations Research; *MIT*, OR Center Seminar Series; *Cornell University*, Operations Research; *Fields Institute*, University of Toronto; *University of Wisconsin*, Industrial Engineering
- 2008: *Texas A&M*, Industrial and Systems Engineering, *Illinois Institute of Technology*, Applied Mathematics

Speaker at Conventions

- Panelist on Radio Frequency Identification; Machine-to-Machine Convention, Chicago, 2009.
- Panelist on Methodological Rigor and Practical Relevancy, What are We Missing?; Supply Chain Management Educators' Conference, organized by Council of Supply Chain Management Professionals, Chicago 2009.

Activities

- Department Editor of Design and Manufacturing, *IIE Transactions*
- Former President, *INFORMS Aviation Section*
- *INFORMS* member
- *MPS* member
- *IIE* member
- Affiliated with the *Alfred Sloan Foundation*
- Associated Editor: *Naval Research Logistics*, *Operations Research (Area of Optimization)*, *Operations Research (Area of Transportation)*, *IIE Transactions*