

# Thomas W.M. Vossen

Leeds School of Business  
University of Colorado  
419 UCB  
Boulder, CO 80309-0419

Office Phone: (303)735-2446  
Office Fax: (303)492-5962  
Mobile Phone: (303)717-6317  
E-mail: vossen@colorado.edu

---

## EDUCATION

<b>University of Maryland at College Park</b> , College Park, MD Doctor of Philosophy, Business and Management	December 2002
<b>Eindhoven University of Technology</b> , Eindhoven, The Netherlands Master of Science, Computer Science; <i>Graduated Cum Laude</i>	January 1995

## EMPLOYMENT

<b>Chair</b> , Strategy, Entrepreneurship, and Operations Division Leeds School of Business, University of Colorado at Boulder	July 2017 - Present
<b>Associate Professor</b> , Operations Management Leeds School of Business, University of Colorado at Boulder	August 2010 - Present
<b>Assistant Professor</b> , Operations Management Leeds School of Business, University of Colorado at Boulder	January 2003 - July 2010
<b>Instructor</b> , Operations Management Leeds School of Business, University of Colorado at Boulder	August 2002 - January 2003
<b>Graduate Research Assistant</b> , Department of Decision and Information Technologies R.H. Smith School of Business, University of Maryland at College Park	August 1996 - August 2002
<b>Systems Analyst</b> , Naval Intelligence Department Royal Dutch Navy, Amsterdam, The Netherlands	January 1995-August 1996

## HONORS

<b>MBA Educator of Distinction Award</b> Leeds School of Business, University of Colorado	2008, 2009, 2010, 2012
<b>MBA Teaching Excellence Award</b> Leeds School of Business, University of Colorado	2008, 2010, 2012, 2014, 2016
<b>Theodore von Kármán Fellowship</b> RWTH Aachen, Germany	Fall 2014
<b>Kolb Teaching Award</b> Leeds School of Business, University of Colorado	2008
<b>Honorable Mention</b> Best Paper Competition, INFORMS Section on Transportation Science and Logistics	2006

<b>First Place</b>	2003
Dissertation Prize Competition, INFORMS Section on Transportation Science and Logistics	
<b>Honorable Mention</b>	2003
Dissertation Prize Competition, INFORMS Section on Aviation Applications	
<b>Best Paper Award, Traffic Flow Optimization</b>	2003
5th EUROCONTROL/FAA ATM R&D SEMINAR, Budapest, Hungary	
<b>Frank T. Paine Doctoral Award for Academic Achievement</b>	2002
R.H. Smith School of Business, University of Maryland at College Park	
<b>University of Maryland Graduate School Fellowship</b>	1996-1998
Graduate School, University of Maryland at College Park	

## PUBLICATIONS

### Refereed Journal Articles

Vossen, T.W.M., R.K. Wood, and A. Newman, 2016, "Hierarchical Benders Decomposition for Open-pit Mine Block Sequencing," *Operations Research*, Vol. 64, No. 4, pp. 771–793.

Vossen, T.W.M. and D. Zhang, 2015, "Reductions of Approximate Linear Programs for Network Revenue Management," *Operations Research*, Vol. 63, No. 6, pp. 1352–1371.

Vossen, T.W.M. and D. Zhang, 2015, "A Dynamic Disaggregation Approach to Approximate Linear Programs for Network Revenue Management," *Production and Operations Management*, Vol. 24, No. 3, pp. 469–487.

Dewil, R., P. Vansteenwegen, D. Cattrysse, M. Laguna, and T.W.M. Vossen, 2015, "An Improvement Heuristic Framework for the Laser Cutting Tool Path Problem," *International Journal of Production Research*, Vol. 53, No. 6, pp. 701-711.

Chang, S., D. Klabjan and T.W.M. Vossen, 2010, "Optimal Radio Frequency Identification Deployment in a Supply Chain Network," *International Journal of Production Economics*, Vol. 125, pp. 71-83.

Reinertsen, H., and T.W.M. Vossen, 2010, "The One-Dimensional Cutting Stock Problem with Due Dates," *European Journal of Operational Research*, Vol. 201, No. 3, pp. 701-711.

Ball, M.O., G. Dahl and T.W.M. Vossen, 2009, "Matchings in Connection with Ground Delay Program Planning," *Networks*, Vol. 53, No. 3, pp. 293-306.

Fu, M.C., S. Lele and T.W.M. Vossen, 2009, "Conditional Monte Carlo Gradient Estimation in Economic Design of Control Charts," *Production and Operations Management*, Vol. 18, No. 1, pp. 60-77.

He, C., J. Marklund and T.W.M. Vossen, 2008, "Vertical Information Sharing in a Volatile Market," *Marketing Science*, Vol. 27, No. 3, pp. 513-530.

van den Briel, M., S. Kambhampati and T.W.M. Vossen, 2008, "Loosely Coupled Formulations for Automated Planning: An Integer Programming Perspective," *Journal of Artificial Intelligence Research*, Vol. 31, pp. 217-257.

Vossen, T.W.M. and M.O. Ball, 2006, "Slot Trading Opportunities in Collaborative Ground Delay Programs," *Transportation Science*, Vol. 40, No. 1, pp. 29-43.

Vossen, T.W.M. and M.O. Ball, 2006, "Optimization and Mediated Bartering Models for Ground Delay Programs," *Naval Research Logistics*, Vol. 53, No. 1, pp. 75-90.

Vossen, T.W.M., M.O. Ball, and R. Hoffman, and M. Wambsganss, 2003, "A General Approach to Equity in Traffic Flow Management and its Application to Mitigating Exemption Bias in Ground Delay Programs," *Air Traffic Control Quarterly*, Vol. 11, No. 4, pp. 1-11.

Vossen, T.W.M., M.O. Ball, D.S. Nau and A. Lotem, 2000, "Applying integer programming to AI Planning," *The Knowledge Engineering Review*, Vol. 15, No. 1, pp. 1-16.

### **Refereed Book Chapters**

Vossen, T.W.M., R. Hoffman, R., and A. Mukherjee, 2012, "Air Traffic Flow Management," in *Quantitative Problem Solving Methods in The Airline Industry: A Modeling Methodology Handbook*, C. Barnhart and B. Smith, eds., Springer Science+Business Media, New York, p387-455.

Hoffman, R., A. Mukherjee, and T.W.M. Vossen, 2011, "Air Traffic Management," in *Wiley Encyclopedia of Operations Research and Management Science*, J.J. Cochran, ed., John Wiley & Sons.

Ball, M.O., C.Y. Chen, R. Hoffman and T.W.M. Vossen, 2001, "Collaborative Decision Making in Air Traffic Management: Current and Future Research Directions," in *New Concepts and Methods in Air Traffic Management*, L. Bianco, P. Dell'Olmo and A. Odoni, eds., Springer-Verlag, Berlin, p17-30.

Golden, B., J. Pepper and T.W.M. Vossen, 1998, "Using Genetic Algorithms for Setting Parameter Values in Heuristic Search," in *Intelligent Engineering Systems Through Artificial Neural Networks: Volume 8*, C. Dagli, M. Akay, A. Buczak, O. Ersoy, and B. Fernandez, eds., ASME Press, pp. 239-245.

Ten Eikelder, H.M.M., M.G.A. Verhoeven, T.W.M. Vossen, and E.H.L. Aarts, 1995, "A Probabilistic Analysis of Local Search," in *Metaheuristics: Theory and Applications*, I.H. Osman and J.P. Kelly, eds., Kluwer Academic Publishers, pp. 605-618.

### **Refereed Conference Proceedings**

Vossen, T.W.M., and D. Zhang, 2012, "A Dynamic Disaggregation Approach to Approximate Linear Programs for Network Revenue Management," in *Proceedings of the 2012 MSOM Annual Conference, NYC, NY*.

Reinertsen, H., and T.W.M. Vossen, 2009, "The Dynamic Multi-Period Cutting Stock Problem," in *Proceedings of the 2009 MSOM Annual Conference, Cambridge, MA*.

Van Den Briel, M., J. Benton and S. Kambhampati, and T.W.M. Vossen, 2007, "An LP-Based Heuristic for Optimal Planning," in *Proceedings of the Thirteenth International Conference on Principles and Practice of Constraint Programming (CP-2007)*, LNCS 4741, pp. 651-665.

Van Den Briel, M., T.W.M. Vossen, and S. Kambhampati, 2005, "Reviving Integer Programming Approaches for AI Planning: A Branch-and-Cut Framework," in *Proceedings of the Fifteenth International Conference on Automated Planning and Scheduling (ICAPS-2005)*, pp. 310-319.

Vossen, T.W.M., M. Ball, R. Hoffman, and M. Wambsganss, 2003, "A General Approach to Equity in Traffic Flow Management and its Application to Mitigating Exemption Bias in Ground Delay

Programs,” in *Proceedings of the ATM-2003 Conference, Budapest, Hungary*.

Ball, M.O., R. Hoffman and T.W.M. Vossen, 2002, “An Analysis of Resource Rationing Methods for Collaborative Decision Making,” in *Proceedings of the ATM-2002 conference, Capri, Italy*.

Ball, M.O., T.W.M. Vossen, and R. Hoffman, 2001, “Analysis of Demand Uncertainty Effects in Ground Delay Programs,” in *Proceedings of the ATM-2001 conference, Santa Fe, NM*.

Vossen, T.W.M., M. Ball, D. Nau and A. Lotem, 1999, “On the Use of Integer Programming in AI Planning,” *Proceedings of the Sixteenth International Joint Conference on Artificial Intelligence (IJCAI-2001)*, pp. 304-310.

### **Other Publications**

Van Den Briel, M., S. Kambhampati, and T.W.M. Vossen, 2007, “Fluent Merging: A General Technique to Improve Reachability Heuristics and Factored Planning,” *Proceedings of the ICAPS-2007 Workshop on Heuristics for Domain Independent Planning: Progress, Ideas, Limitations and Challenges*.

Van Den Briel, M., S. Kambhampati, and T.W.M. Vossen, 2006, “Planning with Preferences and Trajectory Constraints through Integer Programming,” *Proceedings of the ICAPS-2006 Workshop on Planning, with Preferences and Soft Constraints*, pp. 19-22.

Vossen, T.W.M., M. Ball, D. Nau and A. Lotem, 1998, “Integer Programming in AI Planning: Preliminary Experimental Results,” *Proceedings of AIPS-1998 Workshop on Planning as Combinatorial Search*, pp. 111-113.

### **Work In Progress**

Vossen, T.W.M., F. You and D. Zhang, 2017, “An Approximate Dynamic Programming Approach to a Rolling-Horizon Appointment Scheduling Problem,” Under Revision.

Letmathe, P. and T.W.M. Vossen, 2017, “Dynamic Task Allocation with Learning and Forgetting,” Work in Progress.

Vossen, T.W.M. F. You and R. Zhang, 2017, “Approximate Dynamic Programming Approaches for Multidimensional Knapsack Problems,” Work in Progress.

## **PRESENTATIONS**

### **Invited Talks**

“Last Lecture,” presented at MBA class of 2017 graduation event, Boulder, CO, May 2017.

“Approximate Dynamic Programming for Network Revenue Management,” presented at the department of Business and Economics, RWTH Aachen, November 2014.

“Reductions of Approximate Linear Programs for Network Revenue Management,” presented at the department of Production Management, Leibniz University of Hanover, October 2014.

“Reductions of Approximate Linear Programs for Network Revenue Management,” presented at the department of Logistics Management, Johannes Gutenberg University Mainz, July 2014.

“A Dynamic Disaggregation Approach to Approximate Linear Programs for Network Revenue Management,” presented at the Department of Informatics, Systems and Communications, Uni-

versity of Milan Bicocca, July 2012.

“From Collaborative Decision-Making to NextGen: Challenges and Opportunities for OR in Air Traffic Flow Management,” presented at the Jeppesen Operations Research Symposium, Denver, CO, March 2011.

“Air Traffic Flow Management,” presented at the Rocky Mountain INFORMS chapter, Denver, CO, January 2011.

“Air Traffic Flow Management,” presented at the department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI, March 2009.

“The Ground Holding Problem with *Demand* Uncertainty,” presented at the department of Business Mathematics, VU University, Amsterdam, the Netherlands, January 2009.

“A Branch-and-Cut Approach for Artificial Intelligence Planning,” presented at the department of Mathematics, University of Colorado at Denver, Denver, CO, March 2006.

“A Branch-and-Cut Approach for Artificial Intelligence Planning,” presented at the department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI, October 2005.

“Fair Allocation Concepts in Air Traffic Management,” presented at the Institute for Transportation Studies, UC-Berkeley, Berkeley, CA, October 2003.

“Fair Allocation Concepts in Air Traffic Management,” presented at the Department of Pure and Applied Mathematics, University of Padova, Padova, Italy, June 2003.

### **Conference and Workshop Presentations**

“Dynamic Task Allocation with Learning and Forgetting,” presented at the INFORMS national meeting in Houston, TX, November 2017.

“Nested Disaggregation Methods for Open-Pit Block Sequencing,” presented at the OR 2014 conference in Aachen, Germany, September 2014.

“Solving Large-Scale Network Revenue Management problems: an Aggregation Perspective,” presented at the INFORMS national meeting in San Francisco, CA, November 2014.

“Reductions of Approximate Linear Programs for Network Revenue Management,” presented at the INFORMS national meeting in Minneapolis, MN, October 2013.

“Reductions of Approximate Linear Programs for Network Revenue Management,” presented at the OR 2013 Conference in Rotterdam, The Netherlands, September 2013.

“Nested Disaggregation Methods for Open-Pit Block Sequencing,” presented at the INFORMS national meeting in Charlotte, NC, November 2011.

“The Ground Holding Problem with *Demand* Uncertainty,” presented at the INFORMS national meeting in Seattle, WA, November 2007.

“Optimal Deployment of RFID in a Supply Chain Network,” presented at the INFORMS national meeting in Seattle, WA, November 2007.

“The Cutting Stock Problem with Due Dates,” presented at the INFORMS national meeting in

Seattle, WA, November 2007.

“Matchings in Connection with Ground Delay Program Planning,” presented at the INFORMS national meeting in Pittsburgh, PA, November 2006.

“A Branch-and-Cut-and-Price Approach for Artificial Intelligence Planning,” presented at the INFORMS national meeting in San Francisco, CA, November 2005.

“A Branch-and-Cut Approach for Artificial Intelligence Planning,” presented at the 9th INFORMS Computing Society Conference, Annapolis, MD, January 2005.

“Demand Uncertainty in Ground Delay Programs,” presented at the INFORMS national meeting in Denver, CO, October 2004.

“Dynamic Airline Slot Exchange during Ground Delay Programs,” presented at NEXTOR Workshop “Government, the Airline Industry and the Flying Public: a New Way of Doing Business”, Queenstown, MD, June 2004.

“Demand Uncertainty in Ground Delay Programs,” presented at AGIFORS Airline Operations 2004 Conference, Washington, DC, May 2004.

“Demand Uncertainty in Ground Delay Programs,” presented at NEXTOR Workshop “Moving Metrics: A Performance-Oriented View of the Aviation Infrastructure”, Pacific Grove, January 2004.

“Optimization Models for Dynamic Slot Exchange,” presented at the INFORMS national meeting in Atlanta, GA, October 2003.

“Dynamic Airline Slot Exchange,” presented at the EURO/INFORMS Joint International Meeting, Istanbul, Turkey, June 2003.

“A General Approach to Equity in Traffic Flow Management and its Application to Mitigating Exemption Bias in Ground Delay Programs,” presented at the 5th EUROCONTROL/FAA ATM R&D SEMINAR, Budapest, Hungary, June 2003.

“Resource Rationing and Exchange Methods in Air Traffic Management:Part II,” presented at the NEXTOR-FAA-INFORMS Conference at Virginia Tech, Falls Church, VA, May 2003.

“Fair Allocation Concepts in Air Traffic Management,” presented at the NEXTOR CDM Project Review, College Park, MD, July 2002.

“Optimization, Equity and Fair Allocation Concepts in Air Traffic Management”, presented at the First FAA Centers of Excellence Annual Meeting, Cincinnati, OH, November 2001.

“Slot Trading in Collaborative Ground Delay Programs”, presented at the INFORMS national meeting in Miami, FL, November 2001.

“An Analysis of Integer Programming Formulations and Preprocessing Techniques for a Class of AI Planning Problems”, presented at the 17th International Symposium on Mathematical Programming, Atlanta, GA, August 2000.

“On the Use of Integer Programming in AI Planning”, presented at the 16th International Joint Conference on Artificial Intelligence, Stockholm, Sweden, August 1999.

“An Analysis of Alternate Models for the Fair Allocation of Resources in Ground Delay”, presented at the INFORMS national meeting in Cincinnati, OH, May 1999.

“Compression Benefits Revisited: Airborne Delay Savings due to Flow Smoothing”, presented at the NEXTOR workshop: Improving the accuracy of CDM predictions, Boston, MA, May 1999.

## TEACHING

### **Courses Taught: Leeds School of Business, University of Colorado**

MBAC6080, Spring 2005 - Present  
*Decision Modeling and Applications*

MGMT3100, Spring 2014  
*Management of Service Operations*

MBAX6865, Spring 2004 - Spring 2008  
*Supply Chain Systems*

SYST6070/EMEN5600, Spring 2003, Spring 2004  
*Survey of Operations Research*

SYST4070, Spring 2004  
*Decision Modeling Systems*

SYST4050, Spring 2003  
*Supply Chain Systems*

MGMT4050, Fall 2002  
*Competing with Operations*

### **Courses Taught: Other**

MCEN4228/5228, Fall 2006,  
*Global Engineering* (4 Lectures on Supply Chain Management)  
Department of Mechanical Engineering, University of Colorado

*Equity and Fair Resource Allocation in Air Traffic Management*, May 2003  
Short Course for FAA Managers and Policy Makers, Aviation Analysts and Consultants,  
Executive Education, R.H. Smith School of Business, University of Maryland at College Park

*Introduction to Optimization Theory*, Summer 2000  
R.H. Smith School of Business, University of Maryland at College Park

### **Dissertation Advisor**

Jose Ramirez, May 2015  
Harald Reinertsen, Spring 2010  
Leeds School of Business, University of Colorado

### **Thesis Advisor**

Xiaochuan Qin, Summer 2009  
Leeds School of Business, University of Colorado

## Dissertation Committee Member

Mark Zais,	May 2014
Subhamoy Ganguly,	May 2013
Michele Samorani,	May 2012
Fang Liang,	December 2007
Marco Better,	Summer 2007
Linda LaGanga,	Summer 2006
Rahul Patil,	Summer 2006
Gyung Jung,	Spring 2003
Leeds School of Business, University of Colorado	

David Sayah,	Spring 2016
Department of Logistics Management, Johannes Gutenberg University Mainz, Germany	

Maarten Soomer,	Spring 2009
Department of Mathematics, VU University Amsterdam, The Netherlands	

Menkes Van Den Briel,	Summer 2008
Department of Industrial Engineering, Arizona State University	

## SERVICE

### Leeds School of Business, University of Colorado

Chair, Faculty Conduct Committee Committee	Spring 2017
--	-------------

Chair, Ph.D Teaching Award Committee	Fall 2016, Spring 2017
--------------------------------------	------------------------

Chair, Operations Management Recruiting Committee	Fall 2010, Fall 2016
---	----------------------

Director, FTEP Early Career Faculty Program	Spring 2012 - Spring 2014
---	---------------------------

Chair, Master's Curriculum and Policy Committee	Fall 2009 - Spring 2012
---	-------------------------

Member,	
Doctoral Curriculum and Policy Committee	Fall 2012 - Spring 2014
Master's Curriculum and Policy Committee	Fall 2007 - Spring 2009
Undergraduate Curriculum and Policy Committee	Fall 2006 - Spring 2007
International Studies Faculty Committee	Fall 2004 - Spring 2009
Diversity Affairs Faculty Committee	Fall 2003 - Spring 2004

Organizer, Systems Division Seminar Series	Spring 2004 - Spring 2007
--	---------------------------

Primary Unit Evaluation Committee,	
Stacy Saturay (Member)	Fall 2010
Dan Zhang (Member)	Fall 2012
Lori Seward (Chair)	Fall 2012, Fall 2016
Jeffrey York (Member)	Fall 2013

### Other

Chair, Dissertation Prize Committee	Fall 2017
INFORMS Section on Aviation Applications	

Member, Best Air Transportation Paper Award Committee	Fall 2013, Fall 2014
---	----------------------



# INFORMS Transportation and Logistics Society

Member/Chair, Dissertation Prize Committee Fall 2013, Fall 2014  
INFORMS Transportation and Logistics Society

Treasurer/Vice-Chair/Chair Fall 2008 - Fall 2014  
INFORMS Section on Aviation Applications

Cluster Chair, INFORMS Annual Meeting, Seattle, WA Fall 2007  
INFORMS Section on Aviation Applications

Member, Dissertation Prize Committee Fall 2005  
INFORMS Section on Aviation Applications

Communications Coordinator, Spring 2005 - Spring 2007  
INFORMS Section on Aviation Applications

Sponsored Sessions Chair, Fall 2004  
Organizing Committee, INFORMS Annual Meeting, Denver, CO

Member of the Scientific Committee, 2017  
INFORMS Transportation and Logistics Society First Triennial Conference

Member of the Program Committee, 2014-Present  
International Conference on Research in Air Transportation (ICRAT)

Ad-hoc Reviewer 2003-Present  
*Management Science, Operations Research, Proceedings of the IEEE, Transportation Science, Transportation Research: Part B, Transportation Research: Part C, Transportation Research: Part D, Transportation Research: Part E, Computers and Operations Research, European Journal of Operational Research, Omega, Networks, IEEE Transaction on Control Systems Technology, Interfaces, Air Traffic Control Quarterly, Journal of Transport Economics, Journal of the Operational Research Society, International Journal of Production Research, Applied Soft Computing, Operational Research*