

Haitao Li

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Research Fellow of Center for Transportation Studies (CTS)
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Educational Background

2002-2005 UNIVERSITY OF MISSISSIPPI
PhD of Production and Operations Management
Minor fields in Economics Theory and Econometrics
GPA: 3.94
PhD Program Courses GPA: 4.0

2000-2002 UNIVERSITY OF MISSISSIPPI
M.A. Economics GPA: 4.0

1995-2000 BEIJING UNIVERSITY OF AERONAUTICS
AND ASTRONAUTICS
B.E. Foreign Trade in Industry
Minor in Aeronautical Engineering
GPA: 3.85

Academic Positions

2008-present UNIVERSITY OF MISSOURI – ST. LOUIS
Assistant Professor of Logistics and Operations Management
Research Fellow of Center for Transportation Studies (CTS)

2005-2008 TROY UNIVERSITY
Assistant Professor of Operations Management

Research Interests

Resource Constrained Project Scheduling
Supply Chain Optimization
Metaheuristics
Constraint Programming
Stochastic Modeling and Optimization

Courses Taught

Undergraduate Level:

Operations Management
Business Statistics
Introduction to Management Science

Graduate Level:

Quantitative Methods for Business
Advanced Operations Management
Supply Chain Modeling
Decision Theory

Awarded Research Grants

- PI, “Models and Algorithms for Stochastic Resource Planning”, sponsored by HP Labs Innovative Research Program, \$72,587, August 2011 to July 2012.
- PI, “Resource-Constrained Project Scheduling under Uncertainty: Models, Algorithms and Applications”, sponsored by the Army Research Office (ARO) Young Investigator Award, \$146,931, September 2010 to August 2013.
- PI, “Optimizing the Project Portfolio Design and Staffing Decisions for Professional Service Enterprises”, sponsored by HP Labs Innovative Research Program, \$32,200, August 2010 to July 2011.
- PI, “New Models and Algorithms for Stochastic Resource-Constrained Project Scheduling”, sponsored by University Missouri Research Board, \$23,800, June 2010 to May 2011.
- PI, “Constraint Programming Based Algorithms for Stochastic Resource-Constrained Project Scheduling Problems”, College of Business Administration Faculty Summer Research Grant, University of Missouri – St. Louis, \$10,000, from June 1 to August 31, 2009.
- “Applications of Optimization Methodologies to Optimized Skills Bank and MAX-FIT”, U.S. Army Research Office (ARO) Scientific Services Program, Contract No. W911NF-07-D-0001, \$32,000, from May 1 to July 31, 2008.
- “Integrated Modeling and Solution Approach for Optimal Supply Chain Design”, Faculty Summer Research Grant, Troy University, \$4,500, from May 15 to July 31, 2007.

Submitted Research Proposals

- PI, “Constraint Programming Approach for B2B Coordination in General Acyclic Supply Chain Networks”, submitted to The NET Institute for summer research grant, \$15,000, May 2009, not funded.
- CO-PI, “Center For Transportation Studies Strategic Plan”, \$5,000,000, submitted to U.S. DOT for University Transportation Centers (Tier-Two) Program, not funded.

- CO-PI, “Decision Making Tool for Evaluation Passenger Self-tagging”, \$350,000, submitted to Transportation Research Board (TRB), March, 2009, not funded.

Consulting Experience

- Research Consultant, Naval Personnel Research Studies and Technology (NPRST), Millington, TN. From April 2008 to August 2008.
- Research Consultant, Hewlett-Packard Laboratories, “Service Analytics: Workforce Optimization”, From March 2008 to present.
- Statistical Analysis on the Maximum Price Survey for WIC Vendors in Alabama, February 2007.
- Business Consultant, Hewlett-Packard Laboratories, Palo Alto, CA. From June 2005 to December 2005.
- Statistical Analyst, Naval Personnel Research Studies and Technology (NPRST), Millington, TN. From December 2004 to July 2005.

Journal Publications

- Li, H. and K. Womer (2012), Optimizing the Supply Chain Configuration for Make-to-Order Manufacturing, to appear in *European Journal of Operational Research*.
- Santos, C., T. Gonzalez, H. Li, K.-Y. Chen, D. Beyer, S. Biligi, Q. Feng, R. Kumar, S. Jain, R. Ramanujan, A. Zhang (2012), HP Enterprise Services Uses Optimization for Resource Planning, to appear in *Interfaces*.
- Li, H. and D. Jiang (2012), New Model and Heuristics for Safety Stock Placement in General Acyclic Supply Chain Networks, *Computers and Operations Research*, Vol. 39, No. 7, p1333-1344.
- Li, H. and M. Amini (2011), A Hybrid Optimization Approach to Configure a Supply Chain for New Product Diffusion: A Case Study of Multiple-Sourcing Strategy, *International Journal of Production Research*, doi: 10.1080/00207543.2011.597789
- Amini, M. and H. Li (2011), Supply Chain Configuration for Dynamic Diffusion of New Products: An Integrated Optimization Approach, *Omega*, Vol. 39, No. 3, p313-322.
- Rego, C., H. Li and F. Glover (2011), A Filter-and-Fan Approach to the 2D Lattice Model of the Protein Folding Problem, to appear in *Annals of Operations Research*, Vol. 188, No. 1, p389-414.

- Li, H. and K. Womer (2009), A Decomposition Approach for Shipboard Manpower Scheduling, *Military Operations Research*, Vol. 14, No. 3, p1-23.
- Li, H. and K. Womer (2009), Scheduling Projects with Multi-Skilled Personnel by a Hybrid MILP/CP Benders Decomposition Algorithm, *Journal of Scheduling*, Vol. 12, No. 3, p281-298.
- Li, H. and K. Womer (2008), Modeling the Supply Chain Configuration Problem under Resource Constraints, *International Journal of Project Management*, Vol. 26, No. 6, p646-654.
- Blodgett, J. and H. Li (2007), A Simulation Model for Consumer Complaint Process, *Journal of Consumer Satisfaction, Dissatisfaction & Complaint Behavior*, Vol. 20, p1-15.
- Li, H. and K. Womer (2007), A Model and Procedure for Competitive Bidding under Resource Constraints, *International Journal of Operational Research*, Vol. 2, No. 4, p452-480.
- Li, H. and K. Womer (2006), Project Scheduling with Multi-Purpose Resources: A Combined MILP/CP Decomposition Approach, *International Journal of Operations and Quantitative Management*, Vol. 12, No. 4, p305-325.

Other Publications

- Li, H. and K. Womer (2011), Stochastic Resource-Constrained Project Scheduling and Its Military Applications, *MORS Phalanx*, March.
- Riley, C., Cesar Rego and H. Li (2010), A Simple Dual-RAMP Algorithm for Resource Constrained Project Scheduling, 48th *ACM Southeast Regional Conference*, Oxford, MS, Article No.: 67, doi>10.1145/1900008.1900097.
- Jiang, D. and H. Li (2010), The Design and Uncapacitated Single Allocation Hub-and-Spoke Networks Using a Hybrid Algorithm, *Proceedings of ICCTP 2010*, doi: doi:10.1061/41127(382)442.
- Li, H. (2009), Constraint Programming Based Approximate Dynamic Programming for Deterministic and Stochastic Resource-Constrained Project Scheduling. *Technical Report, College of Business Administration*, University of Missouri – St. Louis.
- Santos, C. A., H. Li, M. T. Gonzalez and A. Fuciec (2009), Workforce Capacity and Capability Planning at Hewlett-Packard, *Hewlett-Packard Lab Technical Report HPL-2009-239*, Palo Alto, CA.
- Li, H. and K. Womer (2006), Project Scheduling in Decision-Theoretic Competitive Bidding, *Evolutionary Computation, CEC 2006, IEEE Congress on Computation*, July 2006, p3042-3049.

- Li, H., J. Dula, K. Lewis, and K. Womer (2004), Using Constraint Programming to Solve a Project Scheduling Problem with Skilled Labor, in *14th International Conference on Automated Planning & Scheduling*, Canada, June 2004.
- Dula, J., K. Lewis, K. Womer, and H. Li (2004), A Constraint Programming Approach to Solve A Resource Constrained Project Scheduling Problem, in *Proceedings of International Academy of Business and Public Administration Disciplines Conference*, New Orleans, Jan 2004.

Submitted and Working Papers

- Li, H. and K. Womer (2012), A Dynamic and Adaptive Solution Approach to Solve the Resource-Constrained Project Scheduling Problems with Stochastic Task Durations, working paper, University of Missouri – St. Louis.
- Li, H., C. A. Santos, M. T. Gonzalez, A. Fuciec, S. Jain (2009), Optimizing the Labor Strategy for IT Service Enterprises, working paper, University of Missouri – St. Louis.

Patents

- Santos, C. and Tere Gonzalez, Xin Zhang, Shelen Jain, Andrei Fuciec, Haitao Li, Claudia Marquez-Nava, Christopher Mejia (2011). *Optimizing Workforce Capacity and Capability*. (Submitted)
- Li, Haitao (2012). *New Models and Algorithms for Stochastic Resource-Constrained Project Scheduling*. (In Progress)

Invited Talks

- *HP Enterprise Services Uses Optimization for Resource Planning*, with Pano et al., INFORMS Annual Meeting, Charlotte, NC, Nov. 2011.
- *Project Portfolio Design and Staffing at HP*, invited talk at HPL, Palo Alto, CA, Oct. 2011.
- *Stochastic Resource-Constrained Project Scheduling and Its Military Applications*, 17th Army Conference on Applied Statistics, Annapolis, MD, Oct. 2011.
- *Resource-Constrained Project Scheduling under Uncertainty: Models, Algorithms and Applications*, Military Operations Research Society Session, INFORMS Annual Meeting, Austin, TX, Nov. 2010.
- *Constraint Programming Based Hybrid Algorithms for Project Scheduling and Resource Allocation*, The First Decision Sciences Workshop of Army Research Office, at United States Military Academy, West Point, NY, June 16

– 17, 2009.

- *A New Approach to Supply Chain Configuration Optimization: Models, Algorithms and Research Opportunities*, presented at Seminar of Department of Industrial and System Engineering, Auburn University, Feb 15, 2008.

Conference Presentations

- *Supply Chain Configuration for Diffusion of New Products*, with Mehdi Amini, INFORMS Annual Meeting, Charlotte, NC, Nov. 2011.
- *Multiple-Sourcing Strategies for Supply Chain Configuration of New Products: An Integrated Optimization Approach*, with Mehdi Amini, Society of Marketing Advancement (SMA 2011), Memphis, TN, Nov. 2011.
- *Optimizing the Supply Chain Configuration for Make-to-Order Manufacturing*, with Keith Womer, INFORMS Annual Meeting, Austin, TX, Nov. 2010.
- *New Models and Heuristics for Safety Stock Placement in General Acyclic Supply Chain Networks*, with Dali Jiang, INFORMS Annual Meeting, Austin, TX, Nov. 2010.
- *Modeling Multiple Sourcing Decisions in a Supply Chain*, with Keith Womer, INFORMS Annual Meeting, Seattle, WA, Nov. 2007.
- *A Survey of Portfolio Optimization Problem*, with William Cheng, Liuqing Mai, Troy University Sorrell College of Business Annual Research Symposium, Feb. 2007, Destin, Florida.
- *Modeling the Supply Chain Configuration Problem under Resource Constraints*, with Keith Womer, INFORMS Annual Meeting, Pittsburgh, Nov. 2006.
- *A Tabu Search Approach to Product Line Design*, with Wenge Zhu, INFORMS Annual Meeting, Pittsburgh, Nov. 2006.
- *Determining Crew Composition for A New Technology*, with Keith Womer, INFORMS Annual Meeting, San Francisco, Nov. 2005.
- *RAMP for Resource Constrained Project Scheduling*, with Cesar Rego and Fred Glover, INFORMS Annual Meeting, San Francisco, Nov. 2005.
- *New Advances on Solving the Protein Folding Problem in 3D HP Lattice Model*, with Cesar Rego and Fred Glover, INFORMS Annual Meeting, San Francisco, Nov. 2005.
- *Tree Search Neighborhoods for the Protein Folding Problem in the HP Lattice Model*, with Cesar Rego and Fred Glover, Mississippi Academy of Sciences, Oxford, Mississippi, Jan. 2005.

- *A Filter and Fan Approach for Protein Folding*, with Cesar Rego and Fred Glover, INFORMS Annual Meeting, Denver, Oct. 2004.
- *A Hybrid MILP/CP Approach for Project Scheduling with Skilled Labor*, with Keith Womer, INFORMS Annual Meeting, Denver, Oct. 2004.
- *Ejection Chain Methods for Protein Folding* with Cesar Rego and Fred Glover, INFORMS Annual Meeting, Denver, Oct. 2004.
- *Using ILOG OPL Studio to Develop Optimization Applications*, at Hearin Center Seminar, University of Mississippi, Feb 2004.
- *Using Constraint Programming to Solve a Resource Constrained Project Scheduling Problem*, at International Academy of Business and Public Administration Disciplines Conference, New Orleans, Jan 2004.
- *An Improved Tabu Search Algorithm for 2-D Protein Folding Problem*, with Cesar Rego, INFORMS Annual Meeting, Atlanta, Oct. 2003.
- *Application of Constraint Programming: The Data Error Detection and DDX Manpower Planning problem*, with Keith Womer, at Military Personnel Science Workshop, University of Mississippi, June 2003.
- *Solution of Satisfiability Problems by Unconstrained Quadratic Programming* with Gary Kochenberger, Fred Glover, Bahram Alidaee, Keith Womer, at Military Personnel. Science Workshop, University of Mississippi, June 2003.
- *Constraint Programming Approach to Solve Production Line Scheduling Problem*, at Hearin Center Seminar, University of Mississippi, Feb 2003.

Academic and Professional Services

Editorial Board

International Journal of Business Research and Management (IJBRM)

Committee

Ph.D. Committee, Department of Logistics and Operations Management
2010 to present.

Instruction Committee, College of Business Administration,
University of Missouri – St. Louis, 2008 to 2010.

Graduate Academic Council, Troy University, 2006 to 2008.

Journal Referee

International Journal of Project Management (20)
Operations Research (1)
Journal of Heuristics (4)
Annals of Operations Research (1)
Military Operations Research (1)
OMEGA (3)
Computers and OR (2)
International Journal of Production Research (1)
International Journal of Production Economics (1)
IIE Transactions (2)
Journal of Scheduling (2)
IEEE Transactions on Evolutionary Computation (2)

Grant Review

U.S. Army Research Office (ARO): 2
Fonds québécois de la recherche sur la nature et les technologies (FQRNT),
Québec, Canada

Book Review

Managerial Decision Modeling with Spreadsheets, Second Edition, by Nagraj Balakrishnan, Barry Render and Ralph Stair, Prentice Hall, 2010.

Managing Operations across the Supply Chain, by Swink, Melnyk, Cooper, Hartley, McGraw Hill, 2011.

Conferences and Workshops

Program Committee for the IEEE International Conference on Automation and Logistics (ICAL) 2010, Hong Kong & Macau, August 16 – 20, 2010.

Honors and Professional Affiliations

- **First Place** in Chemical Sciences I category, Sigma Xi Poster Competition 2004, University of Mississippi, Apr 2004. “New advances on solving protein folding problem in a 2D HP lattice model: new neighborhood structures for dynamic and adaptive search”.
- **First Place** in Math and Computer Sciences category, Sigma Xi Poster Competition 2003, University of Mississippi, Apr 2003. Research on Constraint Programming approach to solve scheduling problems.
- 2004 Summer Dissertation Fellowship \$1, 500, University of Mississippi
- 2004 Fall Dissertation Fellowship \$5, 000, University of Mississippi
- Sigma Xi
- Phi Kappa Phi Honor Society

- INFORMS, DSI, ACM and APICS member

Skills and Research Tools

Optimization Software:

- ILOG OPL Studio for optimization modeling and application development
- CPLEX for linear, integer and mixed-integer programming
- ILOG Solver and Scheduler for constraint programming
- GAMS, AMPL, Xpress/Mosel, Gurobi

Mathematics: Matlab

Statistical Software: SAS, SPSS, Limdep, R, WinBugs

Simulation Software: @Risk, Arena, AnyLogic

General Purpose Programming: C, C++, Visual Basic, Visual Basic for Applications (VBA), Java