

# Xin Chen

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University of Illinois at Urbana-Champaign  
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- Employment**    **University of Illinois at Urbana-Champaign**    Urbana, IL  
*Professor* (August 2015 - )  
*Associate Professor* (August 2011 – August 2015)  
*Assistant Professor* (July 2004 – August 2011)  
Department of Industrial and Enterprise Systems Engineering, July 2006 –  
Department of Mechanical and Industrial Engineering, July 2004 – June 2006
- Education**    **Massachusetts Institute of Technology**    Cambridge, MA  
*Postdoctoral associate* (July 2003 – June 2004)  
*PhD in Operations Research* (September 1999 – June 2003)
- University of Washington**    Seattle, WA  
Department of Mathematics (September 1998 – August 1999), *Master student*
- Chinese Academy of Sciences**    Beijing, China  
Institute of Scientific/Engineering Computation and Computational Mathematics  
(September 1995 – August 1998), *Master of Science*
- Xiangtan University**    Xiangtan, China  
Department of Mathematics (September 1991 – August 1995), *Bachelor of Science*
- Awards**    Informs *George Nicholson Student Paper Competition*: Honorable Mention (2002)  
Informs *MSOM Student Paper Competition*: Second Place (2002)  
Informs *Junior Faculty Paper Competition*: Finalist (2008)  
Informs *Revenue Management and Pricing Section Prize* (2009)  
Best Paper Award of the Seventh International Annual Conference of Chinese  
Scholars Association on Management Science and Engineering (2014)  
Jerry S. Dobrovlny Faculty Scholar (2014-)  
Abel Bliss Faculty Scholar (2015-)
- Research Interests**    Revenue Management and Pricing, Inventory and Supply Chain Management  
Optimization, Optimal Stochastic Control, Data Analytics  
Operations Research, Operations Management

**Teaching Experience**

**UIUC** Urbana, IL  
 Lecturer: Introduction to Operations Research (Fall 2004, 2005)  
 Optimization of Large Scale Linear Systems (Spring 2005-2012, 2014-2017)  
 Introduction to Supply Chain Management (Fall 2006-2009, 2011)  
 Engineering Economy (Fall 2010)  
 Logistics and Supply Chain Management (Fall 2013)  
 Dynamic Pricing and Revenue Management (Spring 2015, 2017)  
 Dynamic Programming (Spring 2016, 2018)

**MIT** Cambridge, MA  
*Lecturer:* Logistics and Distribution Systems (Fall 2003).  
*Teaching Assistant:* Logistics and Supply Chain Management (Fall 2002).

**Funding**

ZJU-UIUC Institute Research Program: **Data-Driven Perishable Inventory Management**, \$75,000, PI: X. Chen, 06/2018-05/2020.

Kwai Inc Gift Fund, \$38,200, PI: X. Chen, 01/2020-08/2020.

JD.com Gift Fund, \$70,000, PI: X. Chen, 03/2018-03/2019.

S.F.Express Gift Fund, ¥300,000, PI: X. Chen, 04/2018-12/2018.

Didi Research Award, \$14,731, PI: X. Chen, 01/2018-06/2018.

National Science Foundation: **Matching Supply and Demand through Dual Sourcing**, \$ 330,654 (CMMI-1635160), PI: L. Xin, Co-PI: X. Chen, 08/2016-07/2019.

National Science Foundation: **Cost/Value Allocations in Supply Chain Operations**, \$300,000 (CMMI- 1538451), PI: X. Chen, Co-PI: Qiong Wang, 08/2015-07/2018.

National Science Foundation: **Pricing Analytics: Modeling, Theory and Algorithms**, \$300,000 (CMMI-1363261), PI: X. Chen, 05/2014-05/2017.

ABInv: **Forecast Models for Annual Beer Consumption for ABInbev**, \$144,804, PI: U. Palekar and X. Shao, Co-PI: R. Echamabadi and X. Chen, 05/2014-09/2015.

National Science Foundation of China: **Inventory and Pricing Strategies for Perishable Products in the New Era**, ¥200,000, PI: X. Chen, Co-PI: Y. Xiao of Tsinghua University, 01/2013-12/2014.

National Science Foundation: **Tractable Approximation of Dynamic Decision Models under Uncertainty**, \$150,000 (CMMI-1030923), PI: X. Chen, 07/2010-06/2014.

National Science Foundation: **Coordinated Pricing and Inventory Management**, \$288,694 (CMMI-0926845 ARRA), PI: X. Chen, 07/2009-06/2012.

National Science Foundation: "Collaborative Proposal: **Optimization Approach to Collaborative Games in Supply Chain Management**", \$225,526 (CMMI-0653909), PI: X. Chen, 08/2007-07/2011.

UIUC Research Board: **Risk Aversion in Inventory Management**, \$17,460, PI: X. Chen, 08/2005-05/2006.

## Books

D. Simchi-Levi, X. Chen and Bramel, J. **The Logic of Logistics: Theory, Algorithms, and Applications for Logistics Management** (Second Edition, 2005), Springer-Verlag, Boston.

D. Simchi-Levi, X. Chen and Bramel, J. **The Logic of Logistics: Theory, Algorithms, and Applications for Logistics Management** (Third Edition, 2014), Springer-Verlag, Boston.

## Book Chapters

Xin Chen and David Simchi-Levi. 2012. Coordinated Pricing and Inventory Management. The Oxford *Handbook of Pricing Management*, eds. R. Phillips and Ö. Özer, Oxford University Press, 784-822.

Xin Chen and Chung-Piaw Teo. 2013. Sparse Solutions to Complex Models. Tutorials in Operations Research (INFORMS 2013), eds. Huseyin Topaloglu, 37-59.

## Journal Papers

Xin Chen and Boris Pittel. 2019. On sparsity of the solution to a random quadratic optimization problem. *Mathematical Programming*, forthcoming.

Xin Chen, Zhuoyu Long and Jin Qi. 2019. Preservation of Supermodularity in Parametric Optimization: Necessary and Sufficient Conditions on Constraint Structures. *Operations Research*, forthcoming.

Xin Chen, Zhenyu Hu and Yuhan Zhang. 2019. Dynamic Pricing under Stochastic Reference Price Effects. *Journal of Operations Research Society of China*, 7(1): 107-125.

Xin Chen and Xiangyu Gao. 2019. Stochastic Optimization with Decisions Truncated by Dependent Random Variables and Its applications in Operations. *Operations Research*, 67(5):1321-1327.

Xin Chen, Xiangyu Gao, Zhenyu Hu and Qiong Wang. 2019. Population Monotonicity in Newsvendor Games. *Management Science*, 65(5), 2142–2160.

Xin Chen, Xiangyu Gao and Zhan Pang. 2018. Preservation of Structural Properties in Optimization with Decisions Truncated by Random Variables and Its Applications. *Operations Research*, 66(2), 340-357.

- Xin Chen. 2017. Operational Hedging through Dual-Sourcing under Capacity Uncertainty. *Foundations and Trends® in Technology, Information and Operations Management*: Vol. 11: No. 1-2, pp 46-64.
- Xin Chen. 2017. L-Natural-Convexity and Its Applications in Operations. *Frontiers of Engineering Management*, 4(3), 283-294.
- Xin Chen, Peng Hu and Zhenyu Hu. 2017. Efficient Algorithms for Dynamic Pricing Problem with Reference Price Effect. *Management Science*, 63(12), 4389 – 4408.
- Xin Chen, Peng Hu, Stephen Shum and Yuhang Zhang. 2016. Dynamic Stochastic Inventory Management with Reference Price Effects. *Operations Research*, 64(6), 1529-1536.
- Xin Chen and Jiawei Zhang. 2016. Duality Approaches to Economic Lot Sizing Games. *Production and Operations Management*, 25(7), 1203-1215.
- Zhenyu Hu, Xin Chen and Peng Hu. 2016. Dynamic Pricing with Gain-Seeking Reference Price Effects. *Operations Research*, 64(1), 150-157.
- Xin Chen and Jiming Peng. 2015. New Analysis on Sparse Solutions to Random Standard Quadratic Optimization Problems and Extensions. *Mathematics of Operations Research*, 40(3), 725-738.
- Yueshan Yu, Xin Chen and Fuqiang Zhang. 2015. Dynamic Capacity Management with General Upgrading. *Operations Research*, 63(6), 1372-1389. (Best Paper Award of the Seventh International Annual Conference of Chinese Scholars Association on Management Science and Engineering, 2014)
- Xin Chen, Xiangyu Gao and Zhenyu Hu. 2015. New Approach to Two-Location Joint Inventory and Transshipment Control via L-natural-Convexity. *Operations Research Letters*, 43(1), 65-68.
- Limeng Pan, Mashor Housh, Pan Liu, Ximing Cai, and Xin Chen. 2015. Robust Stochastic Optimization for Reservoir Operation. *Water Resources Research*, 51(1), 409-429.
- Xin Chen, Zhan Pang and Limeng Pan. 2014. Coordinating Inventory Control and Pricing Strategies for Perishable Products. *Operations Research*, 62(2), 284-300.
- Xin Chen, Stephen Shum and David Simchi-Levi. 2014. Stable and Coordinating Contracts for a Supply Chain with Multiple Risk-Averse Suppliers. *Production and Operations Management*, 23(3), 379-392.
- Xin Chen, Peng Hu and Simai He. 2013. Preservation of Supermodularity in

Parametric Optimization Problems with Nonlattice Structures. *Operations Research*, 61(5), 1166-1173.

Xin Chen and Zhisong Chen. 2013. Cost Allocation in Capacity Investment Games. *Naval Research Logistics*, 60(6), 512-523.

Xin Chen, Jiming Peng, and Shuzhong Zhang. 2013. Sparse Solutions to the Random Standard Quadratic Programming. *Mathematical Programming*, 141, 273–293.

Leqin Wu, Xin Chen, Ye Lu and Yaxiang Yuan. 2013. Stability and Allocation in a Three-player Game. *Asia-Pacific Journal of Operational Research*, 30 (3).

Xin Chen and Peng Hu. 2012. Coordinated Pricing and Inventory Management with Deterministic Demand and Costly Price Adjustment. *Operations Research Letters*, 40, 385-389.

Xin Chen and Peng Sun. 2012. Optimal Structural Policies for Ambiguity and Risk Averse Inventory and Pricing Models. *SIAM Journal on Control and Optimization*, 50 (1), 133-146.

Xin Chen, Sean Zhou and Youhua Chen. 2011. Integration of Inventory and Pricing Decisions with Costly Price Adjustments. *Operations Research*, 59(6), 1144-1158.

Xin Chen, Yuhan Zhang and Sean Zhou. 2010. Technical Note: Preservation of Quasi-K-Concavity and Its Application to Joint Inventory-Pricing Models with Concave Ordering Costs. *Operations Research*, 58(4-part-1), 1012-1016.

Xin Chen. 2009. Inventory Centralization Games with Price-Dependent Demand and Quantity Discount. *Operations Research*, 57(6), pp. 1394-1406.

Xin Chen and Yuhan Zhang. 2009. Uncertain Linear Programs: Extended Affinely Adjustable Robust Counterparts. *Operations Research*, 57(6), pp. 1469-1482.

Xin Chen and David Simchi-Levi. 2009. A new approach for the stochastic cash balance problem with fixed costs. *Probability in Engineering and Informational Science*, 23, pp. 545-562.

Xin Chen and Jiawei Zhang. 2009. A Stochastic Programming Duality Approach to Inventory Centralization Game. *Operations Research*, 57(4), pp. 840-851.

Jein-Shan Chen, Xin Chen, Shaohua Pan and Jiawei Zhang. 2009. Some characterizations for SOC-monotone and SOC-convex functions. *Journal of Global Optimization*, 45(2), pp. 259-279.

Xin Chen, Melvyn Sim, Peng Sun and Jiawei Zhang. 2008. A Linear-Decision Based

Approximation Approach to Stochastic Programming. *Operations Research*, 56(2), pp. 344-357.

Xin Chen, Melvyn Sim, and Peng Sun. 2007. A Robust Optimization Perspective to Stochastic Programming. *Operations Research*, 55(6), pp. 1058-1071. (The method proposed in this paper has been implemented in Frontline Solvers Risk Solver Platform product in 2008).

Xin Chen, Melvyn Sim, David Simchi-Levi and Peng Sun. 2007. Risk Aversion in Inventory Management. *Operations Research*, 55(5), 2007, pp. 828-842.

Xin Chen, Chung-Lun Li, Byong-Duk Rhee and David Simchi-Levi. 2007. The Impact of Manufacturer Rebates on Supply Chain Profits. *Naval Research Logistics*, 54, pp. 667-680.

Xin Chen & Houduo Qi. 2006. Generalized P-property and Its Applications to the Semidefinite Linear Complementarity Problem. *Mathematical Programming*, 106:1, 177-201.

Xin Chen & D. Simchi-Levi. 2006. Coordinating inventory control and pricing strategies with random demand and fixed ordering cost: the continuous review model. *Operations Research Letters*. 34, pp. 323-332.

Xin Chen & D. Simchi-Levi. 2004. Coordinating inventory control and pricing strategies with random demand and fixed ordering cost: the infinite horizon case. *Mathematics of Operations Research*, 29 (3), pp. 698-723.

Xin Chen & D. Simchi-Levi. 2004. Coordinating inventory control and pricing strategies with random demand and fixed ordering cost: the finite horizon case. *Operations Research*, 52 (6), pp. 887-896.

Jason Chen, Xin Chen & Paul Tseng. 2004. Analysis of nonsmooth vector-valued functions associated with second-order cones. *Mathematical Programming* ser. B, 101, pp. 95-117.

Xin Chen, Houduo Qi, Liqun Qi & Kok-lay Teo. 2004. Smooth convex approximation to the maximum eigenvalue function. *Journal of Global Optimization*, 30, pp. 253-270.

Xin Chen, Houduo Qi & Paul Tseng. 2003. Analysis of nonsmooth symmetric-matrix functions with applications to semidefinite complementarity problems. *SIAM Journal on Optimization*, 13, pp. 960-985.

Xin Chen & Paul Tseng. 2003. Non-interior continuation methods for solving semidefinite complementarity problems. *Mathematical Programming*, 95, pp. 431-474.

Xin Chen. 2003. Coordinating inventory control and pricing strategies with random demand and fixed ordering cost: Extended Abstract. *Manufacturing & Service Operations Management*, 5 (1), pp. 59-62.

Kurt Anstreicher, Xin Chen, Henry Wolkowicz & Yaxiang Yuan. 1999. Strong duality for a trust-region type relaxation of the quadratic assignment problem. *Linear Algebra and its Applications*, 301, pp. 121-136.

Xin Chen & Yaxiang Yuan. 1999. A note on quadratic forms. *Mathematical Programming*, 86, pp. 187-197.

## **Working Papers**

Xin Chen and Menglong Li. 2019. Discrete Convex Analysis and Its Applications in Operations: A Survey. Working paper.

Xin Chen and Menglong Li. 2020. S-Convexity and Gross Substitutability. Working paper.

Bin Chao, Xin Chen, Edwin Cheng, Yuanguan Zhong and Yongwu Zhou. 2019. Inventory and Financial Strategies with Capital Constraints and Limited Joint Liability. Working paper.

Juan Xu, Xin Chen and Qiong Wang. 2020. Manufacturers' Assortment Planning and Pricing in A Competitive Two-Tier Supply Chain. Working paper.

Yifan Hu, Siqi Zhang, Xin Chen and Niao He. 2020. Biased Stochastic Gradient Descent for Conditional Stochastic Optimization. Working paper.

Yifan Hu, Xin Chen and Niao He. 2019. Sample Complexity of Sample Average Approximation for Conditional Stochastic Optimization. Working paper.

Xin Chen, Alexander Stolyar and Linwei Xin. 2019. Asymptotic optimality of constant-order policies in joint pricing and inventory control models. Working paper ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3375203](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3375203)).

Xin Chen and Menglong Li. 2019. M-Natural-Convexity and Its Applications in Operations. Working paper.

Xin Chen, Zhenyu Hu and Shuanglong Wang. 2017. Stable Risk Sharing and Its Monotonicity. Working paper.

Xiangyu Gao, Xin Chen and Ying-Ju Chen. 2014. Dynamic Pricing with Time-Inconsistent Consumers. Working paper.

## **Invited Talk**

**2003:** Northwestern University, University of North Carolina, Duke University, University of Michigan, Columbia University, Cornell University, NYU  
**2004:** NUS, UBC, Rutgers, USC, MIT, UIUC M&IE, UIUC GE

**2005:** Washington University mini conference on Risk Management in Supply Chain, NYU

**2006:** MacMaster University, University of Chicago, North Carolina State University, University of North Carolina, Duke University, Taiwan Annual Mathematic Conference, HKUST, Chinese University of Hong Kong, Chinese Academy of Sciences,

**2007:** NUS, Chinese Academy of Sciences, Shanghai Jiaotong University (tutorials on joint inventory and pricing models, and collaborative inventory centralization games), UBC

**2008:** Columbia University, University of Texas at Austin, Chinese University of Hong Kong

**2009:** Nanjing University and Hohai University, Fudan University, the University of Texas at Dallas, the City University of Hong Kong, Wuhan University, Huazhong University of Science and Technology, the International Forum on Management Science and Operations Research in Jinan, Washington University at St. Louis, Purdue University

**2010:** Northwestern University, University of Michigan, Minnesota University, Ohio State University, National University of Singapore, Nanyang Technological University, Singapore Management University

**2011:** Hong Kong University, Chinese University of Hong Kong, the John Hopkins University, Chinese Academy of Sciences, the International Forum on Management Science and Operations Research in Xiamen, Hohai University, UIUC ISE

**2012:** Chinese University of Hong Kong, Wuhan University, Huazhong University of Science and Technology, Xiangtan University, Hunan University, Mostly OM workshop at Tsinghua University, Nanjing University and Hohai University, Nanjing Normal University, Southeastern University, Chinese Academy of Sciences, MIT, UBC

**2013:** South China University of Technology (May 16-17), Zhongshan University (May 16), Mostly OM workshop at Tsinghua University (May 30), Fudan University (June 13), Zhejiang University (June 14), Hohai University (June 20), Fudan University (December 23), Hunan (May 27), South China University of Technology (May 28)

**2014:** Chinese University of Hong Kong (January 10), Hong Kong Polytechnic University (January 15), Jinan University (June 6), Changsha University of Science and Technology (June 11), Tsinghua University (June 16, June 17, June 18), plenary talk at the Process Systems Engineering Annual Conference of China (August 21), Northeastern University of China (August 20), Purdue University (October 17)

**2015:** University of Michigan (February 5), Texas A&M University (May 11), Anheuser-Busch Inbev Research Lab (May 12), Southeastern University (June 4), Jinan University (June 9), Beijing Institute of Technology (June 11), Mostly OM workshop at Tsinghua University (June 12), keynote speaker at the Service and Operations Management Annual Conference of the Operations Research Society of China (July 1), Walmart Labs (October 14), South China University of Technology (December 16), Central South University (December 18), Hunan University (December 21)

**2016:** UIUC CS Theory Seminar (April 18), Shenzhen University (June 28),



Shenzhen Middle School (June 28), South China University of Technology (June 29), Hunan University (July 1), Nanjing University (July 8), Georgia Tech (October 13), UIUC Actuarial Science Seminar (November 1), Peking University (December 21), Chinese Academy of Sciences (December 21)

**2017:** South China University of Technology Workshop on Sharing Economy (January 5), University of Chicago (February 14), University of Miami Workshop on Operations (February 20), Virginia Tech (February 24), University of California at Berkeley (February 27), Facebook (February 28), Midwest Manufacturing Business Conference (April 25), City University of Hong Kong (November 16), Polytechnic University of Hong Kong (November 17), Jinan University (November 20)

**2018:** Shenzhen University (January 2), JD.com (January 3), Huawei (January 9), Sunfeng Express (January 11), University of Illinois at Chicago (April 6), New York University (April 9), Columbia University (April 11)

## **Students**

Yuhan Zhang, PhD, graduated 2010, accepted an offer from Morgan Stanley  
Peng Hu, PhD, graduated 2011, accepted an assistant professor position from  
Huazhong University of Science and Technology

Limeng Pan, PhD, graduated 2014

Zhengyu Hu, PhD student, graduated in May 2015, accepted an assistant  
professor position from National University of Singapore

Xiangyu Gao, PhD student, graduated in June 2017, accepted an assistant professor  
position from Chinese University of Hong Kong

Shuanglong Wang, PhD student, graduated in July 2019, accepted an offer from  
Citadel.

Juan Xu, PhD candidate (co-advise with Qiong Wang), expected to graduate in May  
2020

Menglong Li, PhD candidate, expected to graduate in May 2020

Ebrahim Arian, PhD candidate, expected to graduate in May 2021

Yifan Hu, PhD candidate, expected to graduate in May 2021

Tiancheng Zhao, PhD candidate, expected to graduate in May 2021

Xinyu Bia, PhD candidate, expected to graduate in May 2022

Zikun Ye, PhD candidate, expected to graduate in May 2022

Shahzad Bhatti, Master student, graduated in December 2011

Chengcheng Guo, Master student, graduated in May 2011

Hsin-Yi Lin, Master student, graduated in May 2011

## **Professional Service**

**Member** of INFORMS, POMS, MOS

**Track Chair for “Inventory Management”** of 2015 POMS Annual Conference in  
Washington, DC 2015.

**Sponsored Cluster Chair** of INFORMS international conference in Beijing 2012

**Clustering chair** of ISMP 2009 on logistics and transportation

**Co-Organizer** of the OptimA conference at the University of Illinois at Urbana-

Champaign (2008)

**Invited session chair:** INFORMS international conference in Hong Kong 2006; INFORMS Annual Conferences 2007, 2008, 2009, 2013, 2014, 2015; the fifth and sixth annual conferences of Chinese Scholars Association of Management Science and Engineering (2012,2013)

**Reviewer:** National Science Foundation (2006, 2008, 2011, 2014), MSOM Student Paper Competition (2009-2016), Hong Kong RGC (2013, 2014)

**Associate editor:** *Operations Research* (2012-), *Journal of Operations Research Society of China* (2013-), *Operations Research Letters* (2014-), *Mathematics of Operations Research* (2015-2018), *Production and Operations Management* (2015-), *Management Science* (2017-)

**Department editor:** Naval Research Logistics (2018-)

**Reviewer:** *Management Science*, *Mathematics of Operations Research*, *Operations Research*, *Mathematical Programming*, *SIAM Journal on Optimization*, *MSOM*, *POM*, *Transportation Science*, *Inform Journal on Computing*, *Operations Research Letters*, *Naval Research Logistics*, *Journal of Global Optimization*, *Journal of Optimization Theory and its Applications*, *Computational Optimization and Applications*, *Networks*, *IIE Transactions*, *European Journal on Operational Research*, *European Review of Agricultural Economics*, *International Journal of Production Economics*, *Asia Pacific Journal of Operations Research*, *Decision Support Systems*, *Pacific Journal of Optimization*, *Mathematical Methods of Operations Research*, *Journal of Applied Mathematics and Computing*, *Optimization Methods and Software*, etc.

**Service at  
UIUC**

Faculty Search Committee (2005-2006, 2013-2016, 2017-2018)

Graduate Program Committee (2004-2005)

Seminar Committee (2005-2006)

Curriculum Committee (2007-2012)

Space Committee (2007-2012, 2014-2015)

Course review subcommittee for CEE408, 409 and 410, 2008

Course review subcommittee for CEE412, 418, 524, 2014

Course review subcommittee for ISE547, 2016

PhD dissertation committee: Kang Li (2008), Alex Nikolaev (2008), Xiaopeng Li (2010), Golshid Baharian (2014), Ketan Date (2016), Arash Khatibi (2016), Zhaodong Wang (2017), Siyang Xie (2018), Youngsoo Kim (2018), Will Ma (2018)