

# Dahai Xing

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## SPECIALTIES

Optimization-Linear/Non-linear/Integer/Dynamic/Network and Combinatorial/Stochastic Programming, Supply Chain Management, Operations Management/Industrial Engineering

- **Programming languages and professional software (intermediate level and above)**
  - Java (JUnit, Log4j, SVN, Eclipse), C, C++, VB, VBA, Python, SAS and Unix shell scripting. Matlab, Cplex (the callable library and concert technology), Xpress MP, Gurobi, SAS EG, SAS Enterprise Miner, R, Minitab, Arena, and Simio.
- **Optimization modeling and implementation:**
  - Developed complex optimization models for large scale transportation network / order fulfillment scheduling problems, and implemented the models using Cplex/Gurobi with C++/Java.
- **(Big) Data Analytics and modeling**
  - Published two papers which solved ecommerce order fulfillment problems using machine learning and statistical models.
  - Developed complex data analytics models to support key corporate initiatives, such as competitor's business model analysis at Fedex, and Walmart.com prime membership feasibility analysis at WalmartLabs.
  - Experienced in using MapReduce/Spark for data processing, and Cassandra NoSQL API for data retrieving.
  - Proficient in SQL and SAS coding, and experienced in Teradata, Oracle and MS SQL databases.
- **Leadership (WalmartLabs)**
  - Built a team of 6 headcounts, hired 2 data scientists, 2 software developers, 1 product manager and 1 QA.
  - Collaborated with business partners to define and scope projects, and communicated business values to corporate executives to secure team funding.
  - Led cross functional teams to create and deliver solutions (2 corporate wide solutions, 2 pilots) which led to total savings of \$28-32 millions in 2014-2015. The pilot of Smart Ship-from-Store project won 2014 Walmart.com CTO Innovation Award.

## EXPERIENCE

- **Research Staff Member**, April 2015 – present, IBM Research, Yorktown Heights NY.
  - Lead modeler of Inbalance Cloud Intelligent Ecommerce Order Fulfillment System, responsible for its functionality roadmap, modeling, solution design and implementation. A pilot is being rolled out to Kohls by April 2016. Inbalance Cloud Solution will become an IBM Sterling Order Management product in June 2016.
  - Published 2 research papers and filed 12 patents in the fields of machine learning, optimization, and ecommerce order fulfillment.

- **Data Scientist and Team Lead**, October 2013-April 2015, WalmartLabs, San Bruno CA.
  - Lead data scientist in the Multi-channel Sourcing Engine team. Developed a batch order optimization model which reduced total outbound shipment zones by 14%. A pilot in 80 EDCs during 2014 holiday peak increased DC fulfillment outputs by 20% without adding any capacity.
  - Team lead of the Transportation Optimization Team, managing both inbound and outbound transportation projects for Walmart Ecommerce. Helped business partners define and scope projects, and collaborated with cross functional teams to implement and execute solutions. Key projects includes 1) Walmart store and .com inbound supply chain integration project which led to a cost savings of \$23 million per year. 2) End to end SKU tracking system which provided visibility to Walmart ecommerce supply chain, from import DC to final customers. 3) A same day delivery pilot was rolled out in San Jose stores using both walmart own trucks and local induction.
  - Lead data analyst for several key corporate initiatives, including Smart Ship-From-Store project (2014 Walmart.com CTO Award Winner), and Project Tahoe (walmart.com prime membership program), etc.
- **Senior Operations Research Analyst**, July 2012-October 2013, FedEx, Memphis TN.
  - Modeler and business analyst for several air/freight/truck network optimization projects.
  - Received two Bravo Zulu Awards for significantly improving LPO optimization algorithm and driving efficiency in SQI process.
  - Project highlights:
    - a. Lead developer and modeler of a linehaul plan optimization system. A pilot was rolled out to FedEx Ground which led to an annual cost savings of \$14 million.
    - b. Lead developer of an enterprise rail finder system. Developed the time feasibility module, rail schedule cost module, and opportunity matrix module. This ERF software has been rolled out to FedEx Freight in 2013, and increased its intermodal ratio to 17%.

## EDUCATION

*Ph.D.*, Operations Management, Industrial Engineering and Management 2007- 2012  
 Oklahoma State University, Stillwater, OK  
 Dissertation: Supply Chain Coordination with Sales Effort Free Riding.

*B.S.*, Electronics Engineering 2000-2004  
 Beijing University of Aeronautics and Astronautics, Beijing, China

## PUBLICATIONS

- Xing, D., Quanz, B., Deshpande, A., and Liu X., (2015), “**Learning to shortcut and shortlist order fulfillment deciding**,” *Proceedings of the 2015 INFORMS Workshop on Data Mining and Analytics* October 19, 2015.
- Xing, D., Quanz, B., Deshpande, A., and Liu X., (2015), “**Predicting Weeks-Of-Supply Via Sequence Aggregating**,” *Proceedings of the 2015 INFORMS Workshop on Data Mining and Analytics* October 19, 2015.
- Xing, D., and Liu, T., (2012), “**Sales Effort Free Riding and Coordination with Price Match and Selective Target Rebate**,” *European Journal of Operational Research* 219(2): 264-271.
- Xing D., Pajouh F., Hariharan S., Zhou Y., Balasundaram B., Liu T., and Sharda R., (2013), “**A Specialty Steel Bar Company Uses Analytics to Determine Available-To-Promise Dates**.” *Interfaces* 43(6): 503-517.
- Xing D., and Su, D., (2006), “**A Hybrid Method for Analyzing Isolation between Antennas on an Electrically Large Metallic Surface**,” *Antennas, Propagation & EM Theory, 2006. ISAPE '06. 7th International Symposium on*, pp.1-4, 26-29.

## **PROFESSIONAL SERVICE AND DEVELOPMENT**

- Member Board of Directors, Computer & Information Systems (CIS) Division at Institute of Industrial Engineers, May 2015 – Present.
- Invited Session Chair, Supply Chain Optimization and Analytics, INFORMS Annual Meeting, San Francisco, CA 2014