

# Shuai Wang | Curriculum Vitae

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## Education

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**Wright State University**

*Ph.D. in Engineering Program, Industrial and Human System*

**Dayton, Ohio**

2011–2017

**Dalian Jiaotong University**

*Bachelor of Management, Logistics Management*

**Dalian, China**

2007–2011

## Computer skills

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**Language:** R, PYTHON, JULIA, SQL

**Optimization:** AIMMS, PYOMO, PULP, Minizinc, JuMP, CPLEX, GUROBI, CBC

**Machine Learning:** DATAROBOT, H2O, SKLEARN

**Visualization:** SHINY, TABLEAU

## Experience

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**WRIGHT STATE UNIVERSITY**

*Graduate Research and Teaching Assistant*

**Dayton, OH**

2011–2017

- **PhD Dissertation:** Data mining techniques and mathematical models for the optimal scholarship allocation problem for a state university  
Main Advisors: Xinhui Zhang (Senior Director of supply chain at Alibaba), Pratik Parikh (Chair of Dept of Industrial Engineering, University of Louisville).
- **Teaching Assistant:** 1. Intro of Machine Learning Models. 2. Intro of Deterministic Operations Research Models.

**GLOBAL ASSOCIATES**

*Lead Data Science Consultant at Kroger and 84.51*

**Cincinnati, OH**

2017.9–Present

- **Order-picking Staff Daily Scheduling System Optimization:** The staff scheduling system is built to optimize the number of staff required to picking orders at each hour. Time-series based forecasting model was used to predict the orders. The project saves about 20 to 30 % labor cost than the previous implementation. This is escalated as one of top priority project responding to COVID19 at Kroger.
- **Inventory Control:** 1. I build the inventory replenishment routing model based on traveling salesman problem. 2. A comprehensive staff activity graph was created to track the activity,

idle time. 3. Heuristic-based restock strategy was created to alert the restock point based on BOH.

**KROGER, PARTNER WITH WRIGHT STATE UNIVERSITY**

*Senior Operations Research Consultant at Kroger*

**Cincinnati, OH**

*2012–2017*

- **Simulation and Optimization Improves Pharmacy Inventory Management at the Kroger Co.** From media, "The Kroger Co. aspired to improve the inventory at the company's more than 1,950 pharmacy locations. A transparent simulation and optimization model is designed for pharmacy inventory management. The system enabled the company to reduce out-of-stocks by 1.5 million prescriptions, lowered inventory by more than \$100million, and yielded additional revenue of more than \$70 million since Oct 2011." This project is awarded **2013 Franz Edelman Finalist for Achievement in Operations Research and Management Science**—the **Superbowl** competition of optimization and machine learning. I am core member for optimization algorithm design, and I lead the follow-up implementation of other categories.
- **Promotion Planning Optimization:** A MILP optimization model was jointly developed with A.T. KEARNEY using AIMMS to build promotion plan and assortment selection to maximize the overall revenue gain. System is implemented in 2014 and saves about 3 to 5 percent (2 to 5 billions) of the total purchasing cost annually.
- **Forecast and Optimization for Clinics:** The problem is to accurately forecast the number of patients by type to each clinic. Sophisticated forecast models that utilize inputs from time, weather, social media data like Google trend queries are used to predict the number of visits. These forecasts serve as input to calculate the inventory necessary for each type of sickness, and the allocation of medical personnel and their shifts. The overall goal is to improve customer service and increase the number of clinics from 136 to 500 in three to five years. A nurse scheduling system is also developed to minimize costs.
- **High-Value Pharmacy Inventory Transfer Optimization:** The problem is to ship medical drugs from stores with excess to stores with needs so as to: 1) reduce potential obsolesces in inventory; 2) better position drugs to meet customer demand; 3) to aggregate the shipment in such that transportation costs are reduced. The model is piloted in 121 stores and is expected to produce \$30 to \$50 million savings as well as reduction in out-of-stock.

**PRO BONO**

*Operations Research / Data Science Consultant*

- **NYC Dog Care Stores Weekly Staff Scheduling Optimization:** I helped a dog care store with 4 locations to create a weekly staff scheduling system with various constraints such as: staff schedule preference, locations preference, demand coverage, and cross-skills satisfaction.
- **Cincinnati Public School Bus Routing Optimization:** I wrote the core optimization algorithm. The result is comparable to MIT's solution for the Boston public schools.
- **Teaching:** I teach Artificial Intelligence and Machine Learning certificate program at University of Texas, Austin collaborated with GreatLearning.com