

# 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**

2011.9–2017.12

**Dalian Jiaotong University**

*Bachelor of Management, Logistics Management*

**Dalian, China**

2007–2011

## Computer skills

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**Language:** R, PYTHON, JULIA

**Optimization:** AIMMS, Minizinc, JUMP, CPLEX, GUROBI, CBC

**Machine Learning:** DATAROBOT, H2O, SCIKIT-LEARN, TREE-BASED BOOSTING

**Database:** MYSQL, MS SQL SERVER

**Visualization:** SHINY, TABLEAU

## Experience

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**WRIGHT STATE UNIVERSITY**

*Graduate Research and Teaching Assistant*

**Dayton, OH**

2012.9–2017.12

- **PhD Dissertation: Data Mining Techniques and Mathematical Models for the Optimal Scholarship Allocation Problem for a State University**

The research uses classification algorithms to find matriculation and graduation rate by varying scholarships. Then the optimization model was developed to optimize revenue under budget, fairness constraints. This research has prompted the university wide scholarship redesign-the APS calculator, see <http://www.wright.edu/raider-connect/financial-aid/first-year-scholarships>. This project has resulted a 11% (2014), 13.9% (2015) increase in direct admit students, which translates into a 5 to 10 million dollars of revenue increase for WSU annually.

- **Teaching Assistant TA** for courses: Introduction of Data Mining and Applications. Introduction of Operations Research Models.

**KROGER.CO**

*Lead Operations Research / Data Scientist*

**Cincinnati, OH**

2012.3–Present

Role: Mathematical modeling

- **Promotion Planning Optimization:** An optimization model was jointly developed with A.T.KEARNEY, which combining promotion planning-when and how long to promote and assortment selection-what to promote, to benefit the margin. System is implemented in 2014 and saves about 5 %of purchasing cost annually.
- **Forecast and Optimization for clinics:** An accurate forecast of number of patient will not only help the nurse scheduling but also reduce the pharmacy inventory. The forecasting model was built in 2015 using weather, Google trend, and time variables to predict daily number of patient visits. Then, a MIP model was created to optimize the shift of medical personnel in order to cover visits of different types of sickness. The overall goal is to improve customer service and increase the number of clinics from 136 to 500 in five years.
- **Local Inventory Transfer:** 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 (OOS).
- **Periodic Vehicle Routing:** Each store has demand that fluctuates within a week in various categories, such as frozen, fresh, and grocery. Determining the frequency of visit to each store for each category is a complex periodic vehicle routing problem. Sophisticated optimization models have been built to determine the time of visits for each stores; these optimized visit frequencies are expected to result in a reduction of 10% (equivalent to \$150 million) in transportation cost.
- **Pharmacy Department Register Simulation:** Each store has a different volume in terms of patients visit and service time. The simulation model has been created to adjust the number of registers to be installed in each store, as a function of service time and customer volume.
- **Order-picking Staff Daily Scheduling System Optimization:** The staff scheduling system is built to optimize the number of staff required to picking orders. It saves about than 20 to 30 % labor cost than the previous implementation.

#### **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 with various constraints such as: schedule preference, locations preference, demand coverage, and cross-skills satisfaction.
- **Cincinnati Public School Bus Routing and Bell Time Optimization:** I wrote the core routing algorithm using Julia and CBC solver.