

Shuai Wang | Curriculum Vitae

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Education

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

Language: R, PYTHON, JULIA

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

Data Mining: DATAROBOT, H2O, SCIKIT-LEARN, TREE-BASED BOOSTING

Database: MYSQL, MS SQL SERVER

Visualization: SHINY, TABLEAU

Experience

WRIGHT STATE UNIVERSITY

Graduate Research and Teaching Assistant

Dayton, OH

2012.9–2017.12

- **Ph.D Dissertation: Optimal Financial Aid Allocation in Enrollment Management For an Open Admission 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 Science Consultant

Cincinnati, OH

2012.3–Present

Role: make mathematical model, implement core algorithm

- **Promotion Planning Optimization:** An optimization model was jointly developed with A.T.KEARNEY to optimize promotion planning and assortment selection to benefit the overall revenue gain. System is implemented in 2014 and saves about 5 percent 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.
- **Pharmacy 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 Columbus pharmacy stores and is expected to produce \$30 to \$50 million savings in obsolescence as well as reduction in out-of-stock (OOS).
- **Periodic Vehicle Routing:** Each Kroger 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 store; 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.
- **Picking Staff Daily Scheduling System Optimization:** System built to optimize the scheduling of the picking staff at store daily. It saves more than 20% to 30 % labor cost than the current implementation.

PRO BONO

Operations Research / Data Science Consultant

- **NYC Dog Care Stores Weekly Staff Scheduling Optimization:** help a dog care store with 4 locations to create a weekly staff 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 routing algorithm using Julia and CBC solver.