

Shuai Wang | Curriculum Vitae

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Education

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

Language: R, PYTHON, JULIA, SQL

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

Machine Learning: DATAROBOT, H2O, SKLEARN

Visualization: SHINY, TABLEAU

Experience

WRIGHT STATE UNIVERSITY, ACADEMIC

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**

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, and fairness constraints. This research has prompted the university wide scholarship redesign, the APS calculator, see Website. 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** 1. Intro of Data Mining and Applications. 2. Intro of Operations Research Models.

WRIGHT STATE UNIVERSITY PARTNER WITH KROGER

Senior Operations Research Consultant at Kroger

Cincinnati, OH

2012–2017

- **Promotion Planning Optimization:** A MILP optimization model was jointly devel-

oped 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.

- o **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.
- o **High Value Product 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.

GLOBAL ASSOCIATES

Lead Data Science Consultant at Kroger and 84.51

Cincinnati, OH

2017.9–Present

- o **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.
- o **Inventory Control:** 1. I build the inventory replenishment routing model based on traveling salesman problem. A novel distance metric was proposed to match the store layout. 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.

PRO BONO

Operations Research / Data Science Consultant

- o **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.
- o **Cincinnati Public School Bus Routing Optimization:** I wrote the core algorithm using metaheuristics, Julia with CBC/Gurobi solver. The result is comparable to the MIT's solution for the Boston public school system.