Shuai Wang | Curriculum Vitae

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Education

Wright State University **Dayton, Ohio**
Ph.D. in Engineering Program, Industrial and Human System *2011.9–2017.12*

Dalian Jiaotong University **Dalian, China**
Bachelor of Management, Logistics Management *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 **Dayton, OH**
Graduate Research and Teaching Assistant *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 **Cincinnati,OH**
Lead Operations Research / Data Science Consultant *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.
- **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 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 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 Optimizationn**: 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**: 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.