Shuai Wang | Curriculum Vitae

Cincinnati, Ohio 45242

(937) 654-0806 • vanstark88@gmail.com • shuaiwang88.github.io

Summary

Data Science and Operations Research leader with 15+ years of experience delivering high-impact optimization, machine learning, and AI solutions. Specialized in mathematical programming, optimization, time series analysis, and GenAI applications. Proven track record of developing end-to-end systems that drive operational efficiency: saving $1B+ annually at Kroger) and create new revenue streams (TMX Index used in Congressional hearings and investment research). Combines deep technical expertise in optimization algorithms and model development with strong leadership in creating roadmap, mentoring teams, and aligning data initiatives with business objectives in areas like: operation, omni-channel marketing, customer service/experience, etc.

Education

Wright State University **Dayton, Ohio**
Ph.D. in Engineering, Industrial and Human Systems *2011–2017*

Dalian Jiaotong University **Dalian, China**
Bachelor of Management, Supply Chain Management *2007–2011*

Technical Skills

Languages: Python, R, Julia, SQL

AutoML: DataRobot, H2O, PyCaret, GluonTS

Optimization: AIMMS, Pyomo, MiniZinc, JuMP, OPL; CPLEX, Gurobi, CBC, HiGHS

GenAI: Snowflake Cortex, GPT, LangChain, LLM

Heuristics: Simulated Annealing, Genetic Algorithms, Tabu Search, etc

Time Series: Anomaly Detection, Forecasting, Correlation Analysis

Database: Snowflake, Redshift, ClickHouse, PostgreSQL, MySQL, dbt

Cloud: AWS Lambda, SageMaker, Snowpark, Spark, Airflow, API Gateway, EC2

Visualization: Shiny, Looker, Superset, Tableau, Streamlit, Dash

Professional Experience

Pacific Life Insurance **Newport Beach, CA**
Senior Data Scientist (Manager Level) *2023–Present*

Leadership: Create roadmaps and portfolios for data science projects in operations, Generative AI, and customer service. Mentor junior data scientists.

- Developed time series forecasting models using AutoML to predict task volumes for annuity and life products
- Built MILP-based skill-routing task assignment system using Pyomo and HiGHS solver, improving productivity by 10-20% across business functions
- Implemented Chatbot GenAI tool for customer service using Snowflake's Cortex LLM suite
- Optimized call center operations through virtual queue and callback policy implementation
- Redesigned mortality tables (life tables) using mathematical optimization techniques

Thomasnet **New York, NY**
Principal Data Scientist (Tech Lead) *2021–2023*

Leadership: Reported to Head of Data and AI. Established multiple data initiatives from conception.

- **Internal Projects:**
  - Applied AutoML to customer churn prediction, bot detection, and sales forecasting
  - Developed integer programming model for product portfolio/ad placement optimization to maximize ROI
  - Created Python libraries for enterprise data cleaning, extraction, and normalization
  - Introduced Superset, DataHub, and Amundsen for improved data governance
- **External Products:**
  - Built time series anomaly detection system for institutional investors' sourcing activities
  - Developed sourcing trend analysis and stock price/revenue correlation models
  - Created TMX Index to track U.S. supply chain status (used in Congressional hearings and COVID-19 research)
  - Designed APIs and visualizations for alternative data platform with Datawheel

Kroger/84.51 **Cincinnati, OH**

Lead Operations Research Scientist *2017–2021*

- **Order Forecasting & Staff Scheduling:**
  - Developed ML-based order forecasting and optimization model for picking staff scheduling
  - Reduced labor costs by 20-30% ($200-300M annually) using CBC/CPLEX solver
  - COVID-19 response top-priority project
- **Inventory Control:**
  - Created inventory replenishment routing model using TSP-style heuristics with novel layout-aware distance metric
  - Developed comprehensive staff productivity tracking system (scanning, idle time, travel time)
  - Implemented heuristic-based restock alerts using BOH data

WSU/Kroger Large Scale Optimization Lab **Cincinnati, OH**

Operations Research Consultant *2012–2017*

- **Promotion Planning:** Developed MILP model (AIMMS) for promotion planning and assortment optimization, saving $400M annually
- **Clinic Scheduling:** Built forecasting models using time, weather, and social media data to predict patient visits for 500 clinics
- **Pharmacy Inventory:** Created inventory transfer model pilot-tested in 121 stores, projected $30-50M savings
- **Vehicle Routing:** Developed periodic vehicle routing solution reducing transportation costs by 10% ($150M)
- **Call Center:** Implemented staff scheduling model using genetic algorithms to minimize under-coverage

Wright State University **Dayton, OH**

Graduate Researcher/TA *2011–2017*

- **PhD Dissertation:** Developed data mining techniques and optimization models for scholarship allocation, increasing enrollment revenue by $5-10M annually
- **Teaching:** Courses in Data Mining and Operations Research
- **Dissertation Committee:**

1. Xinhui Zhang(Supervisor): Senior Director of Data Science at Coupang. Three times INFORMS Franz Edelman Award laureate.
2. Pratik Parikh: Chair of Dept of Industrial Engineering, University of Louisville.
3. Nan Kong: Purdue University.
4. Caroline Cao: Director of Engineering Innovation & Medical Simulation, University of Illinois Urbana-Champaign.
5. Subhashini Ganapathy: Dean of the College of Graduate Studies, Wright State University.

Consulting Experience

Pro Bono Projects

- **Cincinnati Public Schools:** Developed bus routing optimization algorithm (Julia/CBC/Gurobi) comparable to MIT's solution for Boston
- **NYC Dog Care:** Created weekly staff scheduling system for 5 locations accommodating preferences and cross-skill requirements