Sen Yan

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Education

Renmin University of China Beijing, China
Master in Management Science and Engineering *June 2021*
GPA: 3.77/4.0

- Relevant Coursework: Advanced Operations Research (A), Game Theory (A), Topics in Operation Management (A), Advanced Microeconomics (A), Advanced Mathematical Economics (A), Qualitative research methods (A-)

Bachelor in Management Science and Engineering *June 2018*
GPA: 3.65/4.0

- Relevant Coursework: Mathematical Analysis (A), Advanced Algebra (A), Operations Research (A), Statistics (A), Microeconomics (A-), Macroeconomics (A)

Publications

- **Yan, S.**, Wu, L. (2023). Integrated Optimization of Opportunity Charger Location and Berth Assignment for an Electric Bus Network. *Work-in-Progress Paper*.
- **Yan, S.**, Ji, X., Fang, Y., & Sun, H. (2021). Multiobjective Multistage Robust Integer Optimization Model and Algorithm for Oilfield Development Planning. *Computers & Industrial Engineering*, 159, 107497.
- **Yan, S.**, & Ji, X. (2020). Supply Chain Network Design under the Risk of Uncertain Disruptions. *International Journal of Production Research*, *58*(6), 1724-1740.
- Tan, Y., Ji, X., & **Yan, S.** (2019). New Models of Supply Chain Network Design by Different Decision Criteria under Hybrid Uncertainties. *Journal of Ambient Intelligence and Humanized Computing*, *10*(7), 2843-2853.
- **Yan, S.**, & Ji, X. (2018). Portfolio Selection Model of Oil Projects under Uncertain Environment. *Soft Computing*, *22*(17), 5725–5734.
- Ji, X., **Yan, S.**, & Feng, S. (2017). Uncertain Multi-objective Optimal Model of Oilfield Development Planning and its Algorithm. *Journal of Ambient Intelligence and Humanized Computing*, *8*(5), 769–779.

Work Experience

Department of Aeronautical and Aviation Engineering,
The Hong Kong Polytechnic University Remote
Part-time Research Assistant *September 2023 - Present*

- Formulated a model to optimize the bus battery size, opportunity charger location and berth-line assignment in an electric bus network, minimizing the infrastructure, battery and electricity costs, as well as the bus queuing time.
- Designed an algorithm that incorporates Dantzig-Wolfe, Benders decomposition and column generation to solve the large-scale instances efficiently.

Cardinal Operations Beijing, China
Operations Research Algorithm Developer *July 2021 - Present*
Founded in 2016 by Stanford MS&E luminaries, Cardinal Operations is a beacon in applying Operations Research

- Led a group to enhance our demand forecast-inventory management-supply planning platform by designing a domain-driven algorithmic framework based on 200+ real-world scenarios, resulting in a user-configurable system optimizing production, purchase, transportation, and delivery decisions.
- Reduced production costs and elevated demand satisfaction in the 3C electronics sector by designing tailored optimization algorithms that informed order commitments, capacity evaluations, and material shortage analyses.
- Boosted production efficiency in the automobile industry by developing sequencing algorithms that ensured alignment with specific package and color requirements across various production stages.

- Implemented algorithms to solve advanced production and scheduling (APS) problems for a world-class manufacturer of passenger vehicles, in order to make planning orderly including the production and shift of vehicle plants, the transfer, production and scheduling of engine workshop, as well as the machining of engine part workshop.
- Refined production and transportation planning for a wind turbine manufacturer, leading to reduced energy consumption, improved resource utilization, and freight logistics optimization.

Yum China Shanghai, China

Operations Research Algorithm Intern *July 2020 - October 2020*

- Enhanced real-time decision-making accuracy for KFC restaurants by devising a multi-stage stochastic model that integrated unpredictable customer demand while adhering to packaging and expiration constraints.
- Elevated chefs' production efficiency and reduced waste by designing a discrete scenario approximation, subsequently applying extensive form and progressive hedging techniques for data-backed culinary suggestions.

Research Projects

Optimal Allocation Model for Sinopec Global Natural Gas Resources Beijing, China

Team Leader *July 2019 - November 2020*

- Engineered an efficient resource allocation system for Sinopec's global natural gas resources by developing a multi-objective procurement and production optimization model, utilizing in-depth data analysis of resource characteristics, pipe network specifics, and demand patterns.
- Enhanced an increase in profit by crafting a transportation optimization model, which strategically determined pipeline paths and volume, ensuring adherence to strict capacity and demand parameters.

Model and Algorithm of Enhanced Oil Production in Daqing Oilfield Beijing & Daqing, China

Core Member *March 2018 - December 2019*

- Optimized a streamlined production planning process by analyzing practical requirements, which entailed defining decision variables, objectives, and constraints while also identifying potential uncertainties in the system.
- Engineered a production execution plan by constructing a deterministic multi-objective model, utilizing the NSGA-II based algorithm to optimize production outcomes.
- Enhanced the model by transitioning to a stochastic framework, introducing productivity as a random component, and integrating the deterministic algorithm with Monte Carlo simulations to represent chance constraints.
- Achieved a drastic reduction in algorithm running time, decreasing it from 1 week to a mere 3 hours, facilitating a swift annual production planning process and significantly boosting overall oil production efficiency.

Indicator Prediction Model of Adjustment Well in Shengli Oilfield Beijing, China

Core Member *September 2017 - November 2017*

- Accomplished a rigorous model evaluation for oil production prediction by implementing and comparing various predictive models based on data from 1964 to 2016, including transfer function model, SVR, and LSTM, leading to the selection of the highest-performing model.

Honors and Awards

National Scholarship (2%) 2019, 2020

The First Prize Scholarship (10%) 2018, 2019, 2020

Outstanding Graduate Award (8%) 2018

The First Prize of Beijing Division in China Undergraduate Mathematical Contest in Modeling (10%) 2016

Excellent Team of Social Practice for College Students in Beijing (3%) 2015

Skills

- **Language:** English (IELTS 7.0, GRE 325+3.5), Chinese (native)
- **Computer:** Python, Rust, MATLAB, MySQL, LaTeX