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RESEARCH INTERESTS

- Flexible network design and real-time resource deployment for smoothing operations under sharing economies.
- Optimization techniques for transport scheduling and data-driven decision-making models.
- Applications in large-scale data analysis, including sparse repositioning network design for Boston Hubway Bicycle Sharing System, airport gate assignment for San Francisco Airport, and real-time taxi deployment optimization for New York City.

ACADEMIC EXPERIENCE

National University of Singapore, Singapore July 2016 - April 2018
Department of Analytics and Operations, NUS Business School

- Visiting Ph.D. student in Operations Research
- Advisor: Prof. Chung-Piaw Teo
- Joint Research on Sparse Bicycle Rebalancing Network Design and Online Taxi Deployment Optimization

Hong Kong Polytechnic University, China September 2014 - September 2015

Department of Logistics and Maritime Studies

- Research Assistant
- Advisor: Prof. Zhou Xu
- Joint Research on Conflict-Robust Optimization for Scheduled Events and its Application in Airport Gate Assignment.

EDUCATION

Ph.D., Management Science and Engineering September 2012-June 2018

School of Business, Sun Yat-Sen University, Guangzhou, China

- Thesis title: “Supply and Demand Matching under Uncertainty: Big-data-driven Robust Resource Allocation Research”
- Advisor: Prof. Fan Wang.

B.S., Intelligent Transportation System September 2008-July 2012

School of Engineering, Sun Yat-Sen University, Guangzhou, China

WORKING PAPERS

1. **J.J. Huang**, C.P. Teo, M.C. Chou, L.F. Li, “Sparse and Efficient Rebalancing Network: Exploiting the Circadian Rhythm in Bicycle Sharing Systems”, *Under Revision at Manufacturing & Service Operations Management*
 - Motivated by the Bike Angels Program in New York’s Citi Bike system
 - Provided a generic approach to design a static sparse network for supporting the redistribution activities in the Boston Hubway Bicycle Sharing System
 - Used a much smaller set of arcs (15%) with only a small loss (around 4%) of the performance efficiency over the fully flexibility structure.
 - Implemented specific solver SDPNAL+ in MATLAB due to its computational advantages for solving large-scale SDP problems.
2. **J.J. Huang**, F. Wang, Z. Xu, “Conflict-Robust Resource Assignment for Scheduled Events” *Working Paper*
 - Motivated by the frequently delayed start time of scheduled events in real-life practice

- Provided a generic data-driven approach to design resource assignment for scheduled events under proposed measurement of conflict
 - Derived a tractable formulation of the distributionally robust nonconvex problems
 - Specified asymptotic polynomial (or pseudo-polynomial) time approximation solving scheme, which, under some conditions, can always produce exact optimal solution in polynomial or pseudo-polynomial time
 - Showed the promising performance based on airport gate assignment for San Francisco Airport
3. F. Wang, **J.J. Huang**, L. Xie, “Effects of New Airport Introduction for Different Stakeholders on Prices, Profits and Welfare”, *Under Review at Transportation Research Part B: Methodological*
- Motivated by the introduction of new airport to Beijing with one airport in operations
 - Provided a stylized model to analyze the potential market response and competition dynamics
4. **J.J. Huang**, H. Zheng, C.P. Teo, “Marginal Distribution Model for Demand Forecast using Taobao Data”, *Working Paper*
- Motivated by the “Double 11” shopping festival launched by Alibaba in China
 - Used Marginal Distribution Model to predict sales based on historical price information for each sale item
5. **J.J. Huang**, C.P. Teo, “Real-Time Taxi Deployment using Fluid-based Optimization Model”, *Working Paper*
- Used fluid-based optimization model to conduct real-time taxi deployment in New York City

PUBLICATIONS

- F. Wang, **J.J. Huang**, Z.Y. Liu. (2017) Port Management and Operations: Emerging Research Topics and Progress. *Journal of Management Science and Engineering* (Chinese). **20(5)**, 111-126.

RESEARCH PROJECT

- Theory and Methodology of Port Management and Operations, 2015-2018
- Funded by the National Natural Science Foundation of China (No.71431007)
 - Built robust berth allocation models to solve berth allocation problems.
 - Obtained exact optimal solution for the original nonlinear nonconvex problems.
 - Proposed and analyzed different algorithms to obtain near-optimal solutions for the underlying allocation problems.
- Service Resource Allocation and Optimization, 2013-2016
- Funded by the National Natural Science Foundation of China (No.71225004)
 - In charge of daily airport gate assignment optimization
 - Built distributionally robust nonconvex models and derive the tractable formulations achieving optimal performance with theoretical guarantee

EXPERTISE

Java, MATLAB, R, C++, Julia, Python, Mathematica, AMPL
 Languages: English and Mandarin

TEACHING EXPERIENCE

MBA Teaching Assistant, Sun Yat-Sen Business School FALL 2013
Course: Operations Management in Practice by Prof. Fan Wang
Responsibilities: Help prepare the materials

**CONFERENCE
TALK**

1. **J.J. Huang**, C.P. Teo, M.C. Chou, L.F. Li, “Sparse and Efficient Rebalancing Network: Exploiting the Circadian Rhythm in Bicycle Sharing Systems”, **POMS-HK**, Hong Kong, China, January 6-7, 2018
2. **J.J. Huang**, C.P. Teo, M.C. Chou, L.F. Li, “Sparse and Efficient Rebalancing Network: Exploiting the Circadian Rhythm in Bicycle Sharing Systems”, **Invited Section, INFORMS Annual Meeting**, Houston, TX, USA, October 22-25, 2017
3. **J.J. Huang**, F. Wang, “Robust Tactical Berth Allocation for Minimizing Vessel Conflicts”, **International Conference on Logistics and Maritime Systems (LOGMS)**, Sydney, Australia, June 2016

REFERENCES

Chung-Piaw Teo, Ph.D.

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