Lan Peng, Ph.D.

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EDUCATION

Ph.D.   Industrial Engineering, Operations Research
          Department of Industrial and Systems Engineering, University at Buffalo, SUNY
          2018 - 2023

M.S.   Industrial Engineering, Operations Research,
          Department of Industrial and Systems Engineering, University at Buffalo, SUNY
          2018 - 2020

M.S.   Control Science and Engineering,
          School of Reliability and Systems Engineering, Beihang University,
          2015 - 2018

B.S.   Quality and Reliability Engineering,
          School of Reliability and Systems Engineering, Beihang University,
          2011 - 2015

RESEARCH AREAS

Vehicle Routing Problem: Drone Delivery, Dynamic Vehicle Routing Problem

PUBLICATIONS

[†] Advisor

Journal Articles

J2   Courtney J. Burris, Alexander Nikolaev, Himangshu Paul, and **Lan Peng**
       "Create-Rank-Compete Crowdlearning." *Advances in Engineering Education*, to appear. 2023.

J1   **Lan Peng**, and Chase Murray[†]. "VeRoViz: A vehicle routing visualization toolkit."
       INFORMS Journal on Computing, published online. 2022.
       https://doi.org/10.1287/ijoc.2022.1159

Manuscripts In Preparation

Lan Peng, and Chase Murray[†]. "Parallel Drone Scheduling Traveling Salesman Problem with Weather Impacts." *To be submitted.* Available at SSRN: https://ssrn.com/abstract=4254262

Lan Peng, and Chase Murray[†]. "The Dynamic Pickup-and-Delivery Bundling Problem." *To be submitted.*

Lan Peng, and Chase Murray[†]. "Staffing Optimization in Parallel Drone Scheduling Traveling Salesman Problem with Weather Impacts." *In preparation.*

Conference Proceedings

C2   **Lan Peng**, Ma, Lin[†]., and Naichao, Wang."A fleet-level selective maintenance model for long-distance highway transportation considering stochastic repair quality." *2017 2nd International Conference on System Reliability and Safety (ICSRS)* (EI). Milan, Italy. 2017. https://ieeexplore.ieee.org/abstract/document/8272847

C1   **Lan Peng**, Liu, Baocheng., Ma, Lin[†]., Naichao, Wang. and Liu, Qiannan."Mixed arithmetic reduction model for two-unit system maintenance" *2017 Second International Conference on Reliability Systems Engineering (ICRSE)* (EI). Beijing, China. 2017. https://ieeexplore.ieee.org/abstract/document/8030798

DISSERTATIONS

2023   Ph.D. Thesis. "Emerging Topics in Coordinated Vehicle Routing Problem: Application from Last-Mile Drone Delivery to Nation-wide Bulk Item Shipping"

2018   Master Thesis. "Maintenance policy for multi-unit system considering negative repair performance" (In Chinese)

PRESENTATION

Conference Presentation

4.   **Lan Peng**, and Chase Murray[†]. "Parallel Drone Scheduling Traveling Salesman Problem Considering Winds and Rains" *INFORMS Annual Meeting*. Indianapolis, Oct. 2023.

3.   **Lan Peng**, and Chase Murray[†]. "Parallel Drone Scheduling Traveling Salesman Problem with Weather Impacts." *INFORMS Annual Meeting*. Virtual, Nov. 2021.

2.   **Lan Peng**, and Chase Murray[†]. "Optimization Of Pick-up And Delivery Orders Bundling Problem." *INFORMS Annual Meeting*. Virtual, Nov. 2020.

1.   Chase Murray[†], and **Lan Peng**. "A Vehicle Routing Visualization Toolkit for Drones." *INFORMS Annual Meeting*. Seattle, WA, U.S., Oct. 2019.

RESEARCH EXPERIENCE

Dissertation Subtopic, University at Buffalo

2021 - ∼   "Drone Delivery Considering Weather Impacts"

Research Problem: A fleet of drones and a truck deliver packages in parallel; the truck leaves the depot and visits customers in sequence, while drones fly between the depot and customers and deliver to customers one at a time. The winds and precipitation impact the operation of drones - the energy consumption rate changes according to wind speed and payload; also, moving no-fly zones are modeled to simulate rainfall. In this research, the optimization of staff configuration is also investigated - to minimize the long-term personnel costs increased due to the deviation of work hours because of weather variation.

Dissertation Subtopic, University at Buffalo

2020 - ∼   "Dynamic Pickup and Delivery Bundling Problem"

Research Problem: An online car dealership is moving inventories nationwide. When an inventory is set up for delivery, a request will be posted online for moving companies to take the order. In this research, the car dealership will bundle the delivery requests in which the origin or destination are close, considering the moving companies will accept bundles only if they are interested. Delivery requests arrive with a time-dependent arrival rate throughout the day, and all need to be posted within a specific time limit. The objective is to create attractive bundles among delivery requests and optimize the policy of deciding the timing for the requests to wait to be bundled.

Research Assistant, University at Buffalo

2019   *ACV Auctions, Inc.* (Online B2B car dealership)

Develop web-based toolkit for graphical view of available inventory.

Develop algorithm for optimizing the bundle generation of pickup-and-delivery requests in dynamic environment.

TEACHING EXPERIENCE

Teaching Assistant, University at Buffalo

2018   IE 320 Engineering Economy

2019   IE 374 System Modeling and Operations Research II

2020   IE 411/511 Social Network Behavior Models

2020   IE 550/STL 502 Introduction to Operations Research

2021   IE 101 Introduction to Industrial Engineering

2021   IE 691 Research Seminar

2021   IE 550/STL 502 Introduction to Operations Research

2021   IE 677 Network Optimization

2022   IE 421/521 Sustainable Manufacturing

2022   IE 555 Programming for Analytics

2022   IE 504 Facilities Design

MEMBERSHIPS

INFORMS Student Member
    Served as Vice President for the University at Buffalo Student Chapter from 2020 - 2022

REVIEWER

Transportation Research Part B: Methodological $\times$ 1

SKILLS

Language: Chinese (Native), English (Working proficiency)

Programming: Python, C#, JavaScript, HTML/CSS, SQL

Software: Gurobi, CPLEX, LaTeX, PostgreSQL