

# XIAOQUAN GAO

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## EDUCATION

<b>Purdue University</b> <i>Ph.D. in Industrial Engineering</i> <b>Advisors:</b> Nan Kong, Pengyi Shi, Paul Griffin	GPA: 4.0/4.0	West Lafayette, IN, USA Aug. 2019 – May. 2024
<b>Peking University</b> <i>B.S. in Theoretical and Applied Mechanics</i> <b>Advisor:</b> Jie Song	GPA: 3.68/4.0	Beijing, China Sep. 2015 – July. 2019

## RESEARCH INTERESTS

- **Methodology:** Data analytics, stochastic modeling, reinforcement learning
- **Application:** Data-driven socially responsible operations, focusing on healthcare and criminal justice

## WORKING PAPERS AND WORK IN PROGRESS

- **Xiaoquan Gao**, Pengyi Shi, and Nan Kong. Stopping the revolving door: MDP-based decision support for community corrections placement. In final preparation for submission to *Operations Research*.
  - **First place**, Outstanding Innovation in Service Systems Engineering Award, IISE (2023)
  - **Winner**, Decision Analysis Society Student Paper Award, INFORMS (2023)
  - **Finalist**, Service Science Best Student Paper Award, INFORMS (2023) (Winner to be announced)
- **Xiaoquan Gao**, Nan Kong, and Paul Griffin. Shortening emergency medical response time with joint operations of UAVs with ambulances. **Accepted** by *Manufacturing & Service Operations Management*
- **Xiaoquan Gao**, Griffin Carter, Pengyi Shi, and Nicole Adams. Implementation of interpretable placement decision support in community corrections. *Work in Progress*.

## JOURNAL PUBLICATIONS

- **Xiaoquan Gao**, Sabriya Alam, Pengyi Shi, Franklin Dexter, and Nan Kong. "Interpretable machine learning models to predict hospital patient readmission." *BMC Medical Informatics and Decision Making* 23.1 (2023): 1-11.
- **Xiaoquan Gao**, Jianpei Wen, and Jie Song. "Capacity allocation and revenue sharing in healthcare alliances." *Flexible Services and Manufacturing Journal* 32.4 (2020): 829-851.

## SELECTED AWARDS AND HONORS

Winner, Decision Analysis Society Student Paper Award, INFORMS	2023
Finalist, Service Science Best Student Paper Award, INFORMS	2023
First place, Outstanding Innovation in Service Systems Engineering Award, IISE	2023
Purdue Graduate Student Government Travel Grant, Purdue University	2023
Bilsland Dissertation Fellowship, Department of Industrial Engineering, Purdue University	2023
Future Faculty Fellow, IISE	2022
A. H. Ismail Interdisciplinary Program Doctoral Research Travel Award, Purdue University	2022

## REFEREED CONFERENCE PROCEEDINGS

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- Nan Kong and Juan C. Paz and **Xiaoquan Gao**. "EMS operations management: simulation, optimization, and new service models" *2022 Winter Simulation Conference (WSC)*. IEEE, 2022.
- **Xiaoquan Gao**, Nan Kong, and Paul M. Griffin. "Dynamic optimization of drone dispatch for substance overdose rescue." *2020 Winter Simulation Conference (WSC)*. IEEE, 2020.
- **Xiaoquan Gao**, Jianpei Wen, and Jie Song. "Simulation study of revenue sharing in healthcare alliances." *2018 winter simulation conference (WSC)*. IEEE, 2018.

## TEACHING AND RESEARCH MENTORING

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- **Co-instructor: Health Care Data Science**, Fall 2023, Purdue University
  - Delivered three lectures and two recitation sessions on data preprocessing
  - Designed course syllabus, and prepared course materials and homework
- **Mentored** a Purdue Aeronautics and Astronautics Engineering master student (Griffin Carter, currently a PhD student at Purdue): developed a user interface to visualize occupancy trend and crime rate forecasting and worked on a paper together
- **Mentored** a Purdue Electrical and Computer Engineering undergraduate student (Sabriya Alam, currently a PhD student at UC Berkeley): built interpretable machine learning models for hospital readmission prediction and published a paper together

## CONFERENCE PRESENTATIONS

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1. "Breaking the Vicious Cycle: Community Corrections Placement Support with an MDP Approach"
  - INFORMS Annual Meeting, Phoenix, AZ, 2023 (Scheduled)
  - INFORMS Healthcare Conference, Toronto, ON Canada, 2023
  - POMS Annual Meeting, Orlando, FL, 2023
  - IISE Annual Conference, New Orleans, LA, 2023
  - INFORMS Annual Meeting, Indianapolis, IN, 2022
  - M&SOM Annual Meeting, Munich, Germany, 2022
  - POMS Annual Meeting, Virtual, 2022
2. "Shortening Emergency Medical Response Time with Joint Operations of UAVs with Ambulances"
  - INFORMS Annual Meeting, Phoenix, AZ, 2023 (Scheduled)
  - INFORMS Healthcare Conference, Toronto, ON Canada, 2023
  - POMS Annual Meeting, Virtual, 2022
  - INFORMS Annual Meeting, Virtual, 2021
  - Winter Simulation Conference, Virtual, 2020
  - INFORMS Annual Meeting, Virtual, 2020
3. "Capacity Allocation and Revenue Sharing in Healthcare Alliances"
  - Winter Simulation Conference, Gothenburg, Sweden, 2018
  - International Conference of the Chinese Scholars Association for Management Science and Engineering (CSAMSE), Ningbo, China, 2018

## SERVICES

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**Volunteer:** Student monitor for INFORMS Healthcare Conference 2021

**Session Chair:** WSC 2020; POMS 2022, 2023; INFORMS Healthcare 2023

**Reviewer:** Health Care Management Science, IEEE Robotics and Automation Letters, IIE Transactions on Healthcare Systems Engineering, Flexible Services and Manufacturing Journal, IEEE International Conference on Automation Science and Engineering (CASE) 2020 and 2022

## REFERENCES

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- **Professor Pengyi Shi**  
Operations Management  
Daniels School of Business  
Purdue University  
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- **Professor Paul M. Griffin**  
Industrial and Manufacturing Engineering  
College of Engineering  
Pennsylvania State University  
Email: pmg14@psu.edu
- **Professor Nan Kong**  
Biomedical Engineering  
College of Engineering  
Purdue University  
Email: nkong@purdue.edu
- **Professor Nicole Adams**  
School of Nursing  
College of Health and Human Sciences  
Purdue University  
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