

## Sarah Yini Gao

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### CONTACT INFORMATION

Lee Kong Chian School of Business  
#4073  
Singapore Management University,  
50 Stamford Road, Singapore 178899

Tel: (65) 68289658  
Hp: (65) 98238394  
E-mail: yngao@smu.edu.sg  
Website: www.sarahyinigao.com

### ACADEMIC APPOINTMENT

**Singapore Management University**, Singapore, Singapore  
**Lee Kong Chian School of Business**,

Assistant Professor of Operations Management, July 2017–Present

### RESEARCH INTERESTS

- **Application Areas**
  - Healthcare and Humanitarian Operations
  - Supply Chain & Operations Flexibility
  - Innovative Business Models
- **Methodologies**
  - Optimization
  - Stochastic Processes
  - Game Theory
  - Data-Driven Research

### EDUCATION

**National University of Singapore**, Singapore

Ph.D., Department of Analytics and Operations, January 2013–June 2017

**Thesis Title:** Completely Positive and Copositive Programming: Applications in Disruption Risk Management, Post-disaster Humanitarian Logistics and Homeland Security Games

**Thesis Advisor:** Professor TEO Chung-Piaw

**Committee Members:** Professor Mabel CHOU, Professor TOH Kim Chuan

B.A., Business Administration, August 2008–May 2012

B.A., Chemical Engineering, August 2008–May 2012

### PUBLICATIONS

#### Healthcare and Humanitarian Operations

1. Gao, S.Y., He, Y., Zhang, R., Zheng, Z., Lam, S. W., and Tan, E., 2024. *Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior*. Accepted at **Management Science**. (Methodologies: Optimization, Data-Driven Research)
2. Zhu, T., Yeo, N., Gao, S.Y., and Loke, G.G., 2023. *Inventory-Responsive Donor Management Policy: A Tandem Queueing Network Model*. **Manufacturing & Service Operations Management**, 25(4), 1585-1602. (Methodology: Optimization)
3. Chen, G., Gao, S.Y., Zheng, Z., Yuan, Y., and Chen, X., 2022. *On the Test Accuracy and Effective Control of the COVID-19 Pandemic: A Case Study in Singapore*. **INFORMS Journal on Applied Analytics**, 52(6), 524-538. (Methodology: Data-Driven Research)

#### Supply Chain & Operations Flexibility

1. Gao, S.Y., Simchi-levi, D., Teo, C.P., and Yan, Z., 2019. *Disruption Risk Mitigation in Supply Chains - The Risk Exposure Index Revisited*. **Operations Research**, 67(3), 831-852. (Methodology: Optimization)

2. Yan, Z., Gao, S.Y., and Teo, C.P., 2018. *On the Design of Sparse but Efficient Structures in Operations*. **Management Science**, 64(7), 3421-3445. (Methodology: Optimization)

#### Innovative Business Models

1. Lu, L., Fang, X., Gao, S.Y., and Kazaz, B., 2025. *Converting Counterfeiters in Emerging Markets to Authorized Suppliers: A New Anti-Counterfeiting Measure*. Accepted at **Production and Operations Management**. (Methodology: Game Theory)
2. Gao, S.Y., Lim, W.S., and Tang, C., 2016. *Entry of Copycats of Luxury Brands*. **Marketing Science**, 36(2), 272-289. (Methodology: Game Theory)
3. Gao, S.Y., Lim, W.S., and Ye, Z., 2023. *Optimal Channel Strategy of Luxury Brands in the Presence of Online Marketplace and Counterfeits*. **European Journal of Operational Research**, 308(2), 709-721. (Methodology: Game Theory)
4. Gao, S.Y., Lim, W.S. and Tang, C., 2016. *The Impact of the Potential Entry of Copycats: Entry Conditions, Consumer Welfare, and Social Welfare*. **Decision Sciences**. (Methodology: Game Theory)

#### Optimization Theories

1. Gao, S.Y., Sun, J., and Wu, S.Y., 2016 *A Semi-infinite Programming Approach to Two-stage Stochastic Linear Programs with High-order Moment Constraints*. **Optimization Letters**, 1-11
2. Gao, S.Y., Kong, L. and Sun, J., 2014. *Robust Two-stage Stochastic Linear Programs with Moment Constraints*. **Optimization**, 63(6), 829-837

#### WORKING PAPERS Healthcare and Humanitarian Operations

1. Gao, S.Y., Teo, C.P., and Zheng, H., *Homeland Security Games: The Value of Flexible Redeployment*. **Major Revision at Operations Research**. (Methodologies: Optimization, Game Theory)
2. Wang, X., Zhu, Y., Gao, S.Y., Zheng, Z., and Lam, S. W., *Screening Process Information Matters More Than Clinical Information: A Randomized Controlled Trial of Information Sharing on Cancer Screening Decision*. **Major Revision at Manufacturing & Service Operations Management**. (Methodology: Data-Driven Research)
3. Wang, Z., Bi, S., Gao, S.Y., and Lyu, G., *Capacity Configuration for Emergency Supply Chains: A Time-to-Survive Perspective*. **Major Revision at Manufacturing & Service Operations Management**. (Methodology: Optimization)
4. Bandi, C., Gao, S.Y., Moorthy, R., and Teo, C.P., *COVID-19 Vaccine Appointment Scheduling: The Second Dose Challenge*. Under Preparation. (Methodology: Optimization)
5. Gao, S.Y., He, Y., Yeo, N., and Zheng, Z., *On the Adherence of Colorectal Cancer Screening Policies: A Survey Study in Singapore*. Under Preparation. (Methodology: Data-Driven Research)
6. Gao, S.Y., Hu, K., Liang, Y., and Teo, C.P., *Rethinking Appointment Scheduling: Addressing Counselor Burnout and Improving Patient Outcomes*. Under Preparation. (Methodology: Data-Driven Research)
7. Liu, Y., Gao, S.Y., and Zheng, Z., *Data-Driven Markov Decision Processes with Heterogeneous Groups: Regret Guarantees and Fairness Improvement via Robust Optimization*. Under Preparation. (Methodology: Stochastic Processes)

## Supply Chain & Operations Flexibility

1. Boyabatli, O., Lu, L., and Gao, S.Y., *Flexible vs. Dedicated Technology Choice in the Presence of Multiproduct Subscription Programs*. **Reject and Resubmit at Management Science**. (Methodology: Optimization)

## Optimization Theories

1. Gao, S.Y., and Teo, C.P., *Data-Driven Robust Incomplete Information Games and Bounded Rationality*. Under Preparation
2. Gao, S.Y., Tang, X., and Yuan, Y., *Bilinear Conic Programs: A COP-CP Framework with Flat-Truncation Guarantees*. Under Preparation

## FUNDED RESEARCH PROJECTS

1. Mental Health and Mental Resilience - On the Operational Challenges of Mental Health Counselling Services, SMU Internal Grant, Ministry of Education Tier 1, PI (Project Level): GAO, Yini, 2023, S\$88,000
2. Blood Donor Management: An Exploration on an Inventory-Responsive Policy, SMU Internal Grant, Ministry of Education Tier 1, PI (Project Level): GAO, Yini, 2020, S\$33,229
3. On the Design of Customized Colorectal Cancer Screening Policies to Improve Screening Guideline Compliance, SMU Internal Grant, Ministry of Education Tier 1, PI (Project Level): GAO, Yini, Co-PI (Project Level): ZHENG Zhichao Daniel, 2018, S\$74,945

## NEWS ARTICLES

1. Lim, W.S., Tang, C. and Gao, S.Y., 2017. Mainland-made Copycats Triumph. *South China Morning Post*
2. Gao, S.Y., Lim, W.S. and Tang, C., 2016. Fakes can be better than the real thing? Don't buy it! *The Business Times*.

## INDUSTRIAL AND RESEARCH PROJECTS

1. KK Women's and Children's Hospital: Appointment Scheduling Policy Recommendations to Reduce No-Show Rates, 2024–Present
2. SingHealth: Cancer Screening Policy Design and Screening Capacity Management, 2019–Present
3. Intertek: Agent Scheduling and Demand Forecasting, 2024
4. Ministry of Health: COVID-19 Vaccine Appointment Scheduling and Vaccination Center Capacity Planning, 2019–2012
5. National University of Singapore, University Counselling Services: Mental Health Counseling: Appointment Scheduling and Capacity Management, 2018–Present

## HONORS AND AWARDS

1. Dean's List of Teaching Award, Singapore Management University, 2024–2025
2. POMS Hong Kong Best Student Paper Competition, First Place. 2022
3. Lee Kong Chian Fellowship, Singapore Management University, 2020–2022
4. Dean's List of Teaching Award, Singapore Management University, 2021–2022
5. Dean's List of Teaching Award, Singapore Management University, 2020–2021
6. President's Graduate Fellowship, National University of Singapore, 2013–2017
7. NUS Research Scholarship, National University of Singapore, 2013–2017
8. NUS Exchange Student Awards, National University of Singapore, 2011
9. Student Exchange Program Scholarship, ETH, Zurich, 2011

10. Dean's List, Department of Chemical and Biomolecular Department, National University of Singapore, 2010–2012
11. Dean's List, Business School, National University of Singapore, 2009–2012
12. Book prize for extraordinary academic performance, NUS Bridging Course Program, National University of Singapore, 2008
13. Singapore Ministry of Education Scholarship for PRC Senior Middle Two Students, 2006–2012
14. Best Innovative Project Award in China Youth Science and Technology Competition, China, 2005

#### GRADUATE STUDENT SUPERVISION

1. Yuzhou Liu, PhD Student (2nd Year), Singapore Management University
2. Xiaodong Wang, PhD Student (5th Year), Singapore Management University
3. Nicholas Yeo, PhD in Business, First Position: International Business School Suzhou, Xi'an Jiaotong-Liverpool University
4. Yan He, PhD in Business, First Position: Data Scientist, Biofourmis, Singapore
5. Liling Lu, PhD in Business First Position: Postdoctoral Fellow, Syracuse University

#### TEACHING EXPERIENCE

1. Lee Kong Chian School of Business, Singapore Management University
  - (a) (MSc in Management) Business Analytics
    - Instructor, Term 2, 2024 (Jul 2023 and January 2024 Cohorts)
  - (b) (PhD) Linear Optimization
    - Instructor, Term 1, AY 2024/25
    - Instructor, Term 1, AY 2022/23
    - Instructor, Term 1, AY 2020/21
  - (c) (PhD) Topics in Interdisciplinary Research in OM
    - Instructor, Term 2, AY 2021/22
    - Instructor, Term 2, AY 2017/18
  - (d) (Undergraduate) Service and Operations Analytics
    - Instructor, Term 1, AY 2024/25
    - Instructor, Term 2, AY 2023/24
    - Instructor, Term 1, AY 2022/23
    - Instructor, Term 1, AY 2021/22
    - Instructor, Term 1, AY 2020/21
  - (e) (Undergraduate) Supply Chain Management
    - Instructor, Term 2, AY 2022/23
    - Instructor, Term 1, AY 2021/22
    - Instructor, Term 1, AY 2020/21
    - Instructor, Term 1, AY 2019/20
    - Instructor, Term 1, AY 2018/19
    - Instructor, Term 1, AY 2017/18
2. NUS School of Business, National University of Singapore
  - (a) (EMBA) SF Express - NUS International Business Leader Program
    - Teaching Assistant, Summer, 2014
  - (b) (Undergraduate) Business Analytic I

- Instructor, Term 2, AY 2016/17
- (c) (Undergraduate) Business Analytic II
  - Tutor, Term 1, AY 2015/16
- (d) (Undergraduate) Physical Distribution Management
  - Teaching Assistant, Term 1, AY 2014/15
- (e) (Undergraduate) Supply Chain Management
  - Tutor, Term 2, AY 2013/14

#### ACADEMIC EXPERIENCE

1. Visiting Professor, Fuzhou University, Fuzhou, China, December 2024
2. Visiting Professor, Shanghai Jiaotong University, Shanghai, China, December 2024
3. Visiting Professor, Hong Kong University of Science and Technology, Hong Kong, China, November 2024
4. Visiting Professor, Sichuan University, Chengdu, China, June 2024
5. Visiting Professor, Department of Data Science and Artificial Intelligence, The Hong Kong Polytechnic University, Hong Kong, China, July 2024
6. Visiting Professor, Southwestern University of Finance and Economics, Chengdu, China, December 2023
7. Visiting Professor, Zhejiang University, Hangzhou, China, December 2023
8. Visiting Professor, Chinese University of Hong Kong, Hong Kong, China, January 2023
9. Visiting Professor, The Technical University of Munich, Munich, Germany, July 2022
10. Visiting Professor, Hong Kong University of Science and Technology, Hong Kong, China, March 2019
11. Visiting Scholar, University of Pennsylvania, Philadelphia, Pennsylvania, Fall 2016

#### ACADEMIC & PROFESSIONAL SERVICE

##### **Ad Hoc Reviewer (Alphabetical Order)**

1. Annals of Operations Research
2. Computers & Operations Research
3. Decision Sciences
4. European Journal of Operational Research
5. Health Care Management Science
6. IIE Transactions
7. Journal of Retailing
8. Management Science
9. Manufacturing & Service Operations Management
10. Omega
11. Operations Research
12. Production and Operations Management
13. Transportation Research Part B

##### **Best Paper Reviewers and Judges (Chronological Order)**

1. Judge, Jeff McGill Student Paper Prize, 2025
2. Judge, MSOM SIG Paper Review, 2024–2025

3. Judge, Pierskalla Award, 2024
4. Judge, POMS Healthcare Operations Management Best Paper Competition, 2024
5. Judge, POMS Humanitarian Operations and Crisis Management Best Paper Award Competition, 2023-2024
6. Judge, POMS-HK Best Student Paper Competition, 2021–2024
7. Judge, INFORMS MSOM Best Student Paper Competition, 2021–2023
8. Judge, INFORMS Public Sector Operations Research Best Paper Competition, 2022

#### INVITED TALKS

1. Gao, S.Y., Tang, X., and Yuan, Y., Bilinear Conic Programs: A COP-CP Framework with Flat-Truncation Guarantees, Singapore, July 2025
2. Gao, S.Y., A Short Course on Completely Positive and Copositive Programs. Fuzhou University, Fuzhou, China, December 2024
3. Wang, X., Zhu, Y., Gao, S.Y., Zheng, Z., and Lam, S. W., Screening Process Information Matters More Than Clinical Information: A Randomized Controlled Trial of Information Sharing on Cancer Screening Decision. Whole Lifecycle Smart Digital Hospital Management Symposium Fuzhou, China, December 2024
4. Wang, X., Zhu, Y., Gao, S.Y., Zheng, Z., and Lam, S. W., Screening Process Information Matters More Than Clinical Information: A Randomized Controlled Trial of Information Sharing on Cancer Screening Decision. INFORMS 2024, Seattle, United States, October 2024
5. Liang, Y., Gao, S.Y., Hu, K., and Teo, C.P., Rethinking Appointment Scheduling: Addressing Counselor Burnout and Improving Patient Outcomes. MSOM 2024, Minneapolis, United States, June 2024
6. Gao, S.Y., Teo, C.P., and Zheng, H., Resource Allocation Games with Flexible Redeployment. POMS Turkey 2024, Istanbul, Turkey, June 2024
7. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. Sichuan University, Chengdu, China, June 2024
8. Gao, S.Y., Teo, C.P., and Zheng, H., Resource Allocation Games with Flexible Redeployment. POMS HK 2024, Hong Kong, China, January 2024
9. Gao, S.Y., Teo, C.P., and Zheng, H., Resource Allocation Games with Flexible Redeployment. Southwestern University of Finance and Economics, Chengdu, China, December 2023
10. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. Zhejiang University, Zhejiang, China, December 2023
11. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. INFORMS Healthcare Conference, Toronto, Canada, July 2023
12. Gao, S.Y., Lyu, G., and Bi, S., Emergency Supply Chain Configuration with Correlated Uncertainties. POMS International Conference, Paris, France, July, 2023.
13. Bandi, C., Gao, S.Y., Moorthy, R., and Teo, C.P., COVID-19 Vaccine Appointment Scheduling: The Second Dose Challenge. POMS Conference, Orlando, United States, May 2023
14. Zhu, T., Yeo, N., Gao, S. Y., and Loke, G.G., Inventory-Responsive Donor Management Policy: A Tandem Queueing Network Model. POMS Conference, Orlando, United States, May 2023

15. Gao, S.Y., Lyu, G., and Bi, S., Emergency Supply Chain Configuration with Correlated Uncertainties. POMS Conference, Orlando, United States, May 2023
16. Zhu, T., Yeo, N., Gao, S. Y., and Loke, G.G., Inventory-Responsive Donor Management Policy: A Tandem Queueing Network Model. POMS HK 2023, Hong Kong, China, January 2023
17. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. Chinese University of Hong Kong, Hong Kong, China, January 2023
18. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. Shanghai Jiaotong University, Shanghai, China, October 2022
19. Bandi, C., Gao, S.Y., Moorthy, R., and Teo, C.P., COVID-19 Vaccine Appointment Scheduling: The Second Dose Challenge. The Technical University of Munich, Munich, Germany, July 2022
20. Zhu, T., Yeo, N., Gao, S. Y., and Loke, G.G., Inventory-Responsive Donor Management Policy: A Tandem Queueing Network Model. MSOM 2022, Munich, Germany, June 2022
21. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. Nanyang Technological University, March 2022
22. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. City University of Hong Kong, Hong Kong, China, November 2020
23. Gao, S.Y., Zheng, Z., He, Y., and Zhang, R., Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior. National University of Singapore, Singapore, October 2020
24. Gao, S.Y., Zheng, Z., He, Y., and Yeo, N., On the Adherence to Colorectal Cancer Screening Policies? A Survey Study in Singapore. POMS HK, Hong Kong, China, January 2020
25. Gao, S.Y., Lim, W.S. and Ye, Z., Luxury Brands and Online Marketplace: Friend or Foe? INFORMS Annual Meeting 2019, Seattle, United States, October 2019
26. Gao, S.Y., Teo, C.P., and Zheng, H., Disaster Relief Resource Pre-position and Redeployment Facing an Adversarial Nature. ICCOPT, Berlin, Germany, August 2019
27. Gao, S.Y., Zheng, Z., He, Y., and Yeo, N., On the Adherence to Colorectal Cancer Screening Policies? A Survey Study in Singapore. Health Promotion Board, Singapore, June 2019
28. Gao, S.Y., Lyu, G., and Bi, S., Post-Disaster Humanitarian Logistics Planning: A Time-to-Survive Framework. ICOR, Changsha, China, May 2019
29. Gao, S.Y., Lyu, G., and Bi, S., Post-Disaster Humanitarian Logistics Planning: A Time-to-Survive Framework. POMS, May 2019
30. Gao, S.Y., Teo, C.P., and Zheng, H., Disaster Relief Resource Pre-position and Redeployment Facing an Adversarial Nature. Hong Kong University of Science and Technology, Hong Kong, China, March 2019
31. Gao, S.Y., Teo, C.P., and Zheng, H., Disaster Relief Resource Pre-position and Redeployment Facing an Adversarial Nature. POMS HK, Hong Kong, China, January 2019
32. Gao, S.Y., Teo, C.P., Data-Driven Robust Incomplete Information Games and Bounded Rationality. ISMP, Bordeaux, France, July 2018

33. Gao, S.Y., Lyu, G., and Bi, S., Post-Disaster Humanitarian Logistics Planning: A Time-to-Survive Framework. INFORMS International, Taiwan, June 2018
34. Gao, S.Y., Simchi-levi, D., Teo, C.P., Yan, Z. Disruption Risk Mitigation in Supply Chains - The Risk Exposure Index Revisited. POMS, May 2018
35. Gao, S.Y., Simchi-levi, D., Teo, C.P., Yan, Z. Disruption Risk Mitigation in Supply Chains - The Risk Exposure Index Revisited. Workshop on Optimization and Operations Management, Shanghai, China, November 2017
36. Gao, S.Y., Simchi-levi, D., Teo, C.P., Yan, Z. Disruption Risk Mitigation in Supply Chains - The Risk Exposure Index Revisited. INFORMS Annual Meeting 2016, Nashville, United States, November 2016
37. Gao, S.Y., Teo, C.P., and Zheng, H., Colonel Blotto with Redeployment: A Conic Approach. 5th World Congress of the Game Theory Society, Maastricht, The Netherlands, July 2016.
38. Yan, Z., Gao, S.Y., and Teo, C.P., On the Design of Sparse but Efficient Structures in Operations. INFORMS Annual Meeting 2015, Philadelphia, Pennsylvania, United States, November 2015
39. Gao, S.Y., Lim, W.S. and Tang, C., 2016. The Impact of the Potential Entry of Copycats: Entry Conditions, Consumer Welfare, and Social Welfare. POMS International Conference 2014, Singapore, Singapore, July 2014