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Liang Xu Ph.D.

Academic Experience

Lee Kong Chian School of Business, Singapore Management University Singapore
Associate Professor of Operations Management 2026–Present
Assistant Professor of Operations Management 2022–2026

College of Business, University of Nebraska–Lincoln NE, United States
Assistant Professor of Supply Chain Management and Analytics 2019–2022

Education

Smeal College of Business, The Pennsylvania State University University Park, United States
Ph.D. in Supply Chain Management 2013–2019

- Dissertation Title: Studies on the Emerging Challenges of Innovations in the U.S. Pharmaceutical Supply Chain

Lingnan College of Business, Sun Yat-sen University Guangzhou, China
M.S. in Management Science and Engineering 2011–2013
B.S. in Logistics Engineering and Management 2007–2011

Research Interests

Applications: Pharmaceutical, Healthcare, Retail, Behavioral Operations.
Methodologies: GenAI, Causal Inference, Lab & Field Experiment, Mechanism Design, Game Theory, Discrete Choice Model, Empirical methods.

Publications

1. Jiayi Lai[1], **Liang Xu**, Xin Fang, Tinglong Dai. 2026. Regulating Adaptive New Products: Can Less Oversight Lead to Better Development Practices? Accepted at *Management Science*.
2. Meng Li, Shuming Wang, **Liang Xu**[2]. 2026. Replenishment Recommendation in Convenience Stores. *Production and Operations Management*, 35(3) 1095-112.
   - Featured in SMU Research "Digitally-assisted empowerment: How a simple algorithm helped to improve smaller convenience stores", Aug. 2026.
3. **Liang Xu**, Mani Vidya, Hui Zhao. 2023. Not a Box of Nuts and Bolts: Distribution Channels for Specialty Drugs? *Production and Operations Management*, 32(7) 2283-2303.
4. **Liang Xu**, Hongmin Li, Hui Zhao. 2022. Outcome-Based Reimbursement: The Solution to High Drug Spending? *Manufacturing & Service Operations Management*, 24(4) 2029-2047.
5. **Liang Xu**, Hui Zhao, Nicholas C. Petruzzi. 2021. Inducing Compliance with Post-market Studies for Drugs Under FDA's Accelerated Approval Pathway. *Manufacturing & Service Operations Management*, 23(1): 170-190.
   - Invited for presentation at the U.S. FDA, Sept. 2018
   - Featured in INFORMS media coverage, Aug. 2019.

[1] PhD student.
[2] Authors listed in alphabetical order.

- Highly relevant to the ongoing reform of the FDA's Accelerated Approval Program, particularly following the controversy surrounding the June 2021 approval of Aducanumab (the first monoclonal antibody for Alzheimer's disease) under this pathway.

6. Hui Zhao, **Liang Xu**, Siemsen Enno. 2021. Inventory Sharing and Demand-Side Underweighting. *Manufacturing & Service Operations Management*, 23(5) 1217-1236.

7. Gang Chen, Waiman Cheung, Sung-Chi Chu, **Liang Xu**. 2017. Transshipment Hub Selection from a Shipper's and Freight Forwarder's Perspective. *Expert Systems with Applications*, 83:396-404.

8. Bin Zhang, **Liang Xu**. 2013. Multi-item Production Planning with Carbon Cap and Trade Mechanism. *International Journal of Production Economics*, 144(1):118–127.

Papers In Review Process and Work In Progress

1. **Liang Xu**, Xuying Zhao, Jingmiao Song. 2026. Revenue Sharing with Swap Contracts in Digital Product Development. In preparation for submission.

2. **Liang Xu**, Valery Pavlov. 2026. Profit vs. Rank: The Role of Feedback in Social Comparison and Newsvendor Decisions. Under review (major revision) at *Manufacturing & Service Operations Management*.
   - Best Paper Award for the 16th Conference on Behavioral Operations Research and Behavioral Operations Management in China, 2024

3. Dynamic Incentive Design for B2B Sales under Inventory and Timing Constraints (Working in Progress), with Pascale Crama and Zhenyu Hu. Model under development; conducting theoretical analysis and refining framework.

4. Line Extension as Preemptive Innovation? The Strategic Timing of Follow-On Drug Application (Working in Progress), with Zhaowei She, Kanix Wang, and Jiayi Lai. Data cleaning completed and exploratory analysis underway; initial empirical modeling in progress.

Published Business Cases

1. Gang Chen, **Liang Xu**. 2012. 7 Days Inn: Operations Strategy. *Ivey Case Library*. ID: 9B12D023.
   - EFMD Case Writing Award "highly commended" by the case writing competition sponsor in the Emerging Global Chinese Competitors Category.

2. Gang Chen, **Liang Xu**. 2012. Teaching Note 7 Days Inn: Operations Strategy. *Ivey Case Library*. ID: 8B12D023.

Teaching Experience

Lee Kong Chian School of Business | Singapore Management University

- **OPIM 348 – Supply Chain Analytics**
  - Redesigned the course to center on advanced data analytics using Python, equipping students with programming skills for real-world supply chain applications.
  - Integrated hands-on projects and cases to apply data-driven models in solving complex challenges in inventory management, demand forecasting, revenue optimization, promotion planning, and distribution network design.
- **OPIM 101 – Decision Analysis**
  - Taught students to apply linear programming, probability, statistical analysis, and simulation techniques to optimize complex managerial decisions.
  - Developed proficiency in spreadsheet modeling and engineering for effective decision support.

College of Business | University of Nebraska – Lincoln

- **New Course Developed: SCMA 450 – Data Modeling and Computing**
  - Designed and developed this advanced data science course from the ground up.

  - Taught programming in R using tidyverse and data.table for high-performance data manipulation, visualization, and big data analytics.
  - Introduced predictive analytics and machine learning techniques, such as random forest and XGBoost, through hands-on projects on Kaggle.
- **SCMA 350 – Business Analytics & Information Analysis**
  - Redesigned the course from JMP to Excel and Tableau, aligning with widely used industry tools.
  - Taught effective visualization for storytelling with data.
  - Introduced statistical methods, including confidence intervals, A/B testing, and control charts for data-driven decision-making.
  - Applied time series forecasting and linear & logistic regression through spreadsheets for hands-on learning.

Smeal College of Business | The Pennsylvania State University

- **SCM 421 – Supply Chain Analytics**
  - Built students' quantitative supply chain expertise through data manipulation and visualization, and simulation and optimization techniques to address complex, real-world supply chain applications.
  - Developed proficiency in data analysis and spreadsheet modeling.
  - Recipient of the Ossian R. MacKenzie Doctoral Teaching Award, Smeal College of Business, 2017.

Lingnan College of Business | Sun Yat-sen University, Teaching Assistant

- Operations Management (Joint EMBA with Carlson School of Management)
- Operations Management (International MBA)
- Management Information Systems (Undergraduate)

Awards and Honors

- M&SOM Meritorious Service Award 2021
- Industry Studies Association Dissertation Award, Finalist 2020
- Jeanne and Charles Rider Graduate Fellowship, Smeal College of Business 2017, 2018
- Ossian R. MacKenzie Doctoral Teaching Award, Smeal College of Business 2017
  - Award to one PhD student across all 70 PhD students in each year
- *First prize*, Structural Modeling Applications for Research in Technology (SMART) Workshop Competition, Carnegie Mellon University 2015
- National Scholarship for Graduate Students, Sun Yat-sen University 2012
- Graduate School Fellowship, Sun Yat-sen University 2011, 2012

Professional Services

- **Discussant:** M&SOM Healthcare SIG Conference, London, UK 2025
- **Editorial Service:**
  - Associate Editor, *Decision Sciences*, 2025–Present
  - Editorial Review Board, *Journal of Operations Management*, 2021–Present
- **Ad-hoc Reviewer for:** *Management Science*, *Operations Research*, *Manufacturing & Service Operations Management*, *Production and Operations Management*, *Journal of Operations Management*, *Decision Sciences*, *Service Sciences*, NSF Proposals.
- **Colloquia Participation:** 2017 POMS Doctoral Colloquia, 2017 INFORMS Doctoral Colloquia, 2018 CSCMP Doctoral Symposium, 2019 INFORMS New Faculty Colloquia
- **Invited Session Chair:**
  - INFORMS Annual Meeting, San Francisco, Nov 2026

- INFORMS Annual Conference, Atlanta, Oct 2025
- INFORMS International, Singapore, Jul 2025
- INFORMS Annual Conference, Seattle, Oct 2024
- POMs Hong Kong, Jan 2023
- INFORMS Annual Conference, Anaheim, Oct 2021
- INFORMS Healthcare Conference (Virtual), Jul 2021
- INFORMS Annual Conference, Phoenix, Nov 2018

Conference Presentations

INFORMS Annual Conference, San Francisco, US Nov 2026
Revenue Sharing with Swap Contracts in Digital Product Development.

INFORMS Annual Conference, Atlanta, US Oct 2025
Regulating Adaptive Medical Artificial Intelligence: Can Less Oversight Lead to Greater Compliance?

INFORMS International, Singapore Jul 2025
The Impact of Social Comparison on Newsvendor Decisions: An Experimental Investigation

POMs Hong Kong, Hong Kong Jan 2025
Auto-Replenishment with Human Oversight: Evidence from a Field Experiment

The 16th Behavioral OR/OM Conference, Qingdao, China Dec 2024
The Impact of Social Comparison on Newsvendor Decisions: An Experimental Investigation

INFORMS Annual Conference, Seattle, WA Oct 2024
Regulating Adaptive Medical Artificial Intelligence: Can Less Oversight Lead to Greater Compliance?

POMs Hong Kong, Hong Kong Jan 2023
The Impact of Social Comparison on Newsvendor Decisions: An Experimental Investigation

INFORMS Annual Conference, Virtual Oct 2021
Outcome-Based Reimbursement: The Solution to High Drug Spending?

INFORMS Healthcare Conference, Virtual Jul 2021
Outcome-Based Reimbursement: The Solution to High Drug Spending?

POMs Annual Conference, Virtual May 2021
Outcome-Based Reimbursement: The Solution to High Drug Spending?

INFORMS Annual Conference, Virtual Nov 2020
Outcome-Based Reimbursement: The Solution to High Drug Spending?
How Does Medication-Assist Treatment Help in Combating the Opioid Epidemic?

INFORMS Annual Conference, Seattle, WA Oct 2019
Outcome-Based Reimbursement: The Solution to High Drug Spending?
How Does Medication-Assist Treatment Help in Combating the Opioid Epidemic?

CHOT IAB Spring Meeting, Malvern, PA Apr 2019
A Prediction, Prevention, and Intervention Model to Combat the Opioid Epidemic

INFORMS Annual Conference, Phoenix, AZ Nov 2018
Outcome-Based Reimbursement for Pharmaceuticals with Uncertain Effectiveness

POMs Annual Conference, Houston, TX May 2018
Inducing Compliance with Post-market Studies for Drugs under FDA's Accelerated Approval Pathway
A Behavioral Perspective on Inventory Sharing
Not a Box of Nuts and Bolts: Are Specialty Distributors the Right Channel for Specialty Drugs?

INFORMS Annual Conference, Houston, TX Nov 2017

Inducing Compliance with Post-market Studies for Drugs under FDA's Accelerated Approval Pathway
A Behavioral Perspective on Inventory Sharing

POMs Annual Conference, Seattle, WA May 2017
Accelerated Approval: Gatekeeper or Roadblock?

INFORMS Annual Conference, Nashville, TN Nov 2016
Accelerated Approval: Gatekeeper or Roadblock?

POMs Annual Conference, Orlando, FL May 2016
Not a Box of Nuts and Bolts: Distribution Channel Choice for Specialty Drugs

INFORMS Annual Conference, Philadelphia, PA Nov 2015
Determinants of Distribution Channel Choice in Pharmaceutical Industry – Specialty Drugs

POMs Annual Conference, Washington D.C. May 2015
Gatekeeper or Roadblock: Optimal Evidence Generation and Access for New Drug Regulation

Invited Talks

University of Tennessee, Knoxville, United States Oct 2025
Regulating Adaptive Medical Artificial Intelligence: Can Less Oversight Lead to Greater Compliance?

Xi'an Jiaotong University, Xi'an, China Jun 2024
Auto-Replenishment with Human Oversight: Evidence from a Field Experiment

Sun Yat-sen University, Guangzhou, China Jun 2023
Auto-Replenishment with Human Oversight: Evidence from a Field Experiment

South China University of Technology, Guangzhou, China Jun 2023
Auto-Replenishment with Human Oversight: Evidence from a Field Experiment

Sun Yat-sen University, Guangzhou, China Nov 2022
The Impact of Social Comparison on Newsvendor Decisions: An Experimental Investigation

University of Chinese Academy of Sciences, Beijing, China Oct 2022
The Impact of Social Comparison on Newsvendor Decisions: An Experimental Investigation

University of Houston, Houston, United States Feb 2022
Outcome-Based Reimbursement: The Solution to High Drug Spending?

Case Western Reserve University, Cleveland, United States Jan 2019
Inducing Compliance with Post-Market Studies for Drugs under FDA's Accelerated Approval Pathway

University of Colorado, Boulder, United States Jan 2019
Inducing Compliance with Post-Market Studies for Drugs under FDA's Accelerated Approval Pathway

University of South Carolina, Columbia, United States Jan 2019
Inducing Compliance with Post-Market Studies for Drugs under FDA's Accelerated Approval Pathway

The University of Texas, Arlington, United States Jan 2019
Inducing Compliance with Post-Market Studies for Drugs under FDA's Accelerated Approval Pathway

University of Waterloo, Waterloo, Canada Jan 2019
Inducing Compliance with Post-Market Studies for Drugs under FDA's Accelerated Approval Pathway

University of Kansas, Lawrence, United States Dec 2018
Inducing Compliance with Post-Market Studies for Drugs under FDA's Accelerated Approval Pathway

US Food and Drug Administration (FDA), Silver Spring, MD, United States Sep 2018
Inducing Compliance with Post-market Studies for Drugs under FDA's Accelerated Approval Pathway

Research Grants

1. PI. AI-Human Interaction in Inventory Decision. Academic Research Fund (AcRF) Tier 1, Ministry of Education, Singapore, Fund No. C207/MSS23B009, Nov 2023-Apr 2025. Total Budget: SGD 39,141.
2. Co-Investigator. Aggregator Business Model for Vehicle-to-Grid and A Pilot Program to Study Driver Behaviors. Academic Research Fund (AcRF) Tier 2, Ministry of Education, Singapore. Under revision for resubmission following feedback from the SMU UREC committee. Targeted Total Budget: SGD 994,166.
3. Co-Investigator. Human-Centered Operational Pandemic Resilience (HOPE). Academic Research Fund (AcRF) Tier 3, Ministry of Education, Singapore. In preparation for submission. Targeted Total Budget: SGD 9,880,000.

Media Mentions

- Digitally-assisted empowerment: How a simple algorithm helped to improve smaller convenience stores, *SMU Research*. Aug 2026.
- Joined the Tech Refactored podcast to share insight about the pharmaceutical industry supply chain, *Nebraska Governance and Technology Center*. May 2022.
- Xu Examines Mechanism to Speed Drug Approval Process, *Nebraska Today*. Dec. 2020
- Significant number of drugs on the market not yet fully approved, *European Pharmaceutical Review*. Aug. 2019.
- New Research Reports Over One-third of Pre-Approved Prescription Drugs Have Not Completed the FDA Approval Process, *INFORMS News Releases*. Aug. 2019.
- One-Third of Pre-Approved Drugs Haven't Completed FDA Approval Process, *Anesthesia Experts*. Aug. 2019.

Programming Skills

Machine Learning: Python.
Data Analytics: R, SAS, SQL.
Econometric Analysis: Stata, R
Optimization: Matlab, Gurobi, Mathematica

Ph.D. Dissertation

Title: *Studies on the Emerging Challenges of Innovations in the U.S. Pharmaceutical Supply Chain*

Dissertation Committee:

- **Hui Zhao (Committee Chair)**
  Professor of Supply Chain Management
  Department of Supply Chain & Information Systems
  Smeal College of Business, The Pennsylvania State University
  419 Business Building, University Park, PA 16802, US
  Tel: (814) 863-1940 Email: huz10@psu.edu
- **Nicholas C. Petruzzi**
  Professor of Operations and Information Management
  Wisconsin School of Business, University of Wisconsin-Madison
  4341 Grainger Hall, Madison, WI 53706, US
  Tel: (608) 263-7598 Email: npetruzzi@wisc.edu
- **Vidya Mani**
  Associate Professor of Business Administration
  Darden School of Business, University of Virginia
  100 Darden Blvd, Charlottesville, VA 22903, US
  Email: ManiV@darden.virginia.edu

- **Min Ding**
  Bard Professor of Marketing
  Department of Marketing, Smeal College of Business
  The Pennsylvania State University
  419 Business Building, University Park, PA 16802, US
  Tel: (814) 863-1940 Email: minding@psu.edu