

# Yajun Lu

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## Education

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<b>Ph.D.</b> , Industrial Engineering & Management <b>Oklahoma State University</b> , Stillwater, Oklahoma Dissertation title: Finding second-order clubs (Advisor: Dr. Baski Balasundaram)	(GPA: 3.8/4)	2014–2019
<b>M.S.</b> , Industrial Engineering <b>Huazhong University of Science and Technology</b> , Wuhan, China		2008–2011
<b>B.S.</b> , Industrial Engineering <b>Zhongyuan University of Technology</b> , Zhengzhou, China		2004–2008

## Appointments

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<b>College of Business &amp; Industry</b> (AACSB Accredited) Assistant Professor of Analytics & Operations Management	<b>Jacksonville State University</b> August 2021–Present
<b>Freeman College of Management</b> (AACSB Accredited) Visiting Assistant Professor of Business Analytics	<b>Bucknell University</b> August 2019–May 2021
<b>Department of Industrial Engineering</b> Industrial Engineer (duty: Data Analytics and Operations)	<b>Huawei Technologies Co., Ltd.</b> March 2011–July 2014

## Research Interests

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◇ Business Analytics, Healthcare Analytics & Operations, Artificial Intelligence, Graph-based Data Mining, Social Media Analytics, Network Optimization

## Publications

### Refereed Journal Papers

1. **Lu, Y.**, Duong, T., Miao, Z., Thieu, T., Lamichhane, J., Ahmed, A., & Delen, D. (2024). A Novel Hyperparameter Search Approach for Accuracy and Simplicity in Disease Prediction Risk Scoring. *Journal of the American Medical Informatics Association*, 31(8):1763-1773 ([A](#) on the ABDC list).
2. Pan, H., **Lu, Y.**, Balasundaram, B., & Borrero, J. S. (2024). Finding conserved low-diameter subgraphs in social and biological networks. *Networks*, 84:509-527.
3. **Lu, Y.**, Miao, Z., Sahraeian, P., & Balasundaram, B. (2023). On atomic cliques in temporal graphs. *Optimization Letters*, 17(4), 813-828.
4. **Lu, Y.**, Salemi, H., Balasundaram, B., & Buchanan, A. (2022). On finding fault-tolerant low-diameter clusters in graphs, *INFORMS Journal on Computing*. 34(6):3181-3199 (on the [UTD-24](#)).
5. **Lu, Y.**, Chen, S., Miao, Z., Delen, D., & Gin, A. (2021). Clustering temporal disease networks to assist clinical decision support systems in visual analytics of comorbidity progression. *Decision Support Systems*, 148:113583 ([ranked A\\*](#) on the ABDC list).

6. Chen, C., & **Lu, Y.** (2021). Shipment Sizing for Autonomous Trucks of Road Freight. *International Journal of Logistics Management*, 32(2):413–433 (ranked A on the ABDC list).
7. **Lu, Y.**, Moradi, E., & Balasundaram, B. (2018). Correction to: Finding a maximum  $k$ -club using the  $k$ -clique formulation and canonical hypercube cuts. *Optimization Letters*, 12(8), 1959–1969.
8. **Lu, Y.** & Cecil, J. (2016). An Internet of Things (IoT)-based collaborative framework for advanced manufacturing. *International Journal of Advanced Manufacturing Technology*, 84(5-8), 1141–1152.
9. Cecil, J., Raj Kumar, B., **Lu, Y.**, & Basallali, V. (2016). A review of micro-devices assembly techniques and technology. *International Journal of Advanced Manufacturing Technology*, 83(9-12), 1569–1581.
10. **Lu, Y.**, Han, Q., & Rao, Y. (2011). Path optimization in metal cutting based on common line cutting method. *Machinery Design and Manufacture*, 6, 120–122.
11. Han, Q., **Lu, Y.**, & Rao, Y. (2010). Plate cutting NC machining simulation system based on OpenGL. *Manufacturing Automation*, 32(11), 57–62.

#### Under Review/Revision (manuscripts available upon request)

1. **Lu, Y.**, Tan, Y., & Wang, L. (2024). Flight delay dynamics: unraveling the impact of airport-network-spilled propagation on airline on-time performance. Major Revision at *Decision Support Systems* (ranked A\* on the ABDC list), December 2024. (Presented at 2024 INFORMS and DSI Annual Conferences).
2. Vaghfi Mohebbi, P., **Lu, Y.**, Miao, Z., Balasundaram, B., Kalgotra, P., & Sharda, R. (2024). Identifying most lethal cliques in disease comorbidity graphs. Currently under first revision at *IISE Transactions on Healthcare Systems Engineering*, September 2024. (Poster presentation honorable mention at the PanOptiC 2023 Workshop, University of Florida, March 9-10, 2023).

#### Selected Working Papers

3. **Yajun Lu** and Balabhaskar Balasundaram. Induced conflict formulations for second-order  $k$ -clubs, to be submitted to the *INFORMS Journal on Computing* by February 2025. (Scheduled to be presented at the INFORMS Computing Society Conference, March 14-16, 2025, Toronto, Canada).
4. Tan, Y., Gong, K., Wang, L., **Lu, Y.**, Han, Z., Ahmed, A., Zhou, X., Zhang, C., & Zou, J. (2024). Integrating multimodal data for personalized nutritional recommendations in chronic disease management. To be submitted to *International Journal of Medical Informatics* by December 2024.
5. Liu, C., **Lu, Y.**, Littleton, J., & Delen, D. (2024). Positive influence dominating sets in social networks to transform and promote wellness.
6. Lu Wang, **Yajun Lu**, and Abdulaziz Ahmed. Examining the Impact of Unfinished ED Laboratory Tests on Patient Throughput in Emergency Departments. (Presented at the INFORMS 2024 Annual Conference).
7. Lu Wang, **Yajun Lu**, Mazhar Arikan, and Suman Mallik. When Does the Emergency Department Need Help the Most? Identifying Trigger Conditions of the Full Capacity Protocol.

#### Book Chapters

1. Balasundaram, B., **Lu, Y.**, & Mahdavi Pajouh, F. (2024). Degree and distance-based clique relaxations. In P. M. Pardalos, D. Z. Du, & M. T. Thai (Eds.), *Handbook of combinatorial optimization* (3rd ed.). Accepted in September 2024, forthcoming.

## Refereed Conference Proceedings

1. **Lu, Y.**, Cecil, J., Mayfield, B., & Ramanathan, P. (2016). A next generation IoT based approach for collaborative manufacturing. In *Proceedings of the 2016 Industrial and Systems Engineering Research Conference*, Anaheim, CA, May 2016.
2. **Lu, Y.**, Cecil, J., & Zafar, Z. (2015). The creation of collaborative cyber physical environments for micro assembly. In *Proceedings of the ASME 2015 International Mechanical Engineering Congress and Exposition*, Houston, TX, November 13-19, 2015.
3. **Lu, Y.** & Cecil, J. (2015). An Internet of Things (IoT) based cyber-physical framework for advanced manufacturing. In *OTM Confederated International Conferences "On the Move to Meaningful Internet Systems"*, pp. 66-74, Springer, October 2015.

## Selected Conference Presentations

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1. **Yajun Lu**, Yi Tan, & Lu Wang. Network-Driven Airline On-Time Performance Prediction with Dynamic Delay Propagation. 2024 DSI Annual Conference, November 23-25, 2024, Phoenix, Arizona.
2. **Yajun Lu**, Thanh Duong, Zhuqi Miao, Thanh Thieu, Jivan Lamichhane, Abdulaziz Ahmed, and Dursun Delen. A Novel Hyperparameter Search Approach for Accuracy & Simplicity in Disease Prediction Risk Scoring. INFORMS 2024 Annual Meeting, October 20-23, 2024, Seattle, Washington.
3. **Yajun Lu**, Thanh Duong, Zhuqi Miao, Thanh Thieu, Jivan Lamichhane, Abdulaziz Ahmed, and Dursun Delen. A Novel Hyperparameter Search Approach for Accuracy and Simplicity in Disease Prediction Risk Scoring. 34th POMS Conference 2024, April 25-29, 2024, Minneapolis, Minnesota.
4. **Yajun Lu**, Thanh Duong, Thanh Thieu, Zhuqi Miao, and Dursun Delen. Balancing the Scale and the Accuracy of a Risk Index: An Enhanced Automatic Risk Score Generator for Health Condition Prediction. DSI 2023 Annual Conference, November 18-20, 2023, Atlanta, Georgia
5. **Yajun Lu**, Zhuqi Miao, Parisa Sahraeian, and Balabhaskar Balasundaram. On Atomic Cliques in Temporal Graphs. INFORMS 2023 Annual Meeting, October 15-18, 2023, Phoenix, Arizona.
6. **Yajun Lu**, Zhuqi Miao, Parisa Sahraeian, and Balabhaskar Balasundaram. On Atomic Cliques in Temporal Graphs. Workshop: PANOPTIC View on Global Optimization, March 9-10, 2023, University of Florida, Gainesville, Florida.
7. **Yajun Lu**, Thanh Duong, Thanh Thieu, and Zhuqi Miao. Balancing the Scale and the Accuracy of a Risk Index: An Enhanced Automatic Risk Score Generator for Health Condition Prediction. INFORMS 2022 Annual Meeting, October 16-19, 2022, Indianapolis, Indiana.
8. **Yajun Lu**, Suhao Chen, Zhuqi Miao, Dursun Delen, and Andrew Gin. Clustering Temporal Disease Networks to Assist Clinical Decision Support Systems in Visual Analytics of Comorbidity Progression. Decision Sciences Institute, November 19, 2021, Virtual Conference.
9. **Yajun Lu**, Hosseinali Salemi, Balabhaskar Balasundaram, and Austin Buchanan. On finding fault-tolerant low-diameter clusters in graphs. INFORMS 2021 Annual Meeting, October 24-27, 2021, Anaheim, California
10. **Yajun Lu**, Suhao Chen, Zhuqi Miao, Dursun Delen, and Andrew Gin. Detecting Comorbidity Progression Using Temporal Disease Networks: A Case Study on *Clostridioides Difficile*. DSI 2020 Annual Conference, November 21-23, 2020, Virtual Conference
11. **Yajun Lu**, Hosseinali Salemi, Austin Buchanan, and Balabhaskar Balasundaram. On finding fault-tolerant low-diameter clusters in graphs. INFORMS 2020 Annual Meeting, November 8-11, 2020, Virtual Conference
12. **Yajun Lu**, Suhao Chen, Zhuqi Miao, Dursun Delen, and Andrew Gin. Detecting Comorbidity Progression Using Temporal Disease Networks: A Case Study on *Clostridioides Difficile*. INFORMS 2020 Annual Meeting, November 8-11, 2020, Virtual Conference

13. **Yajun Lu**, Hosseinali Salemi, Austin Buchanan, and Balabhaskar Balasundaram. On fault-tolerant low-diameter clusters in graphs. INFORMS Telecommunications and Network Analytics Conference (TNAC) 2020, October 20–21, 2020, Virtual Conference
14. **Yajun Lu**, Hosseinali Salemi, Hao Pan, Balabhaskar Balasundaram, Austin Buchanan, and Sunderesh Heragu. Formulation and Solution of Master Production Planning in Large Scale Private Label Manufacturing. DSI 2019 Annual Conference, November 23–25, 2019. New Orleans, Louisiana
15. **Yajun Lu**, Hosseinali Salemi, Balabhaskar Balasundaram, and Austin Buchanan. Fault-tolerant s-clubs. 2019 INFORMS Annual Meeting, October 20–23, 2019, Seattle, Washington
16. **Yajun Lu** and Balabhaskar Balasundaram. On detecting second-order 2-clubs in graphs. 2018 INFORMS Annual Meeting, November 4-7, 2018, Phoenix, Arizona

## Teaching Experience

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### Jacksonville State University

1. CBA 390: Operations and Supply Chain Management, In-person and Online sections
  - ◊ FA24, SU24 (4.88/5), SP24 (4.75/5, 4.63/5), FA23 (4.7/5 and 4.31/5), SU23 (4.82/5), SP23 (4.62/5 and 4.04/5), FA22 (4.49/5), SU22 (4.91/5), SP22 (4.69/5 and 4.74/5), FA21 (4.71/5), SU21 (4.5/5)
2. BA 545: Quantitative Methods for Business Decision Making, MBA–Hybrid
  - ◊ SU24 (5/5), FA23 (5/5), FA22 (4.98/5), SU22 (4.85/5), FA21 (4.9/5), SU21 (4.53/5)
3. BA 550: Supply Chain Analytics, MBA–Hybrid
  - ◊ SP24 (5/5), SP23 (4.96/5), SP22 (4.99/5)
4. CBA 210: Information Technology for Business
  - ◊ FA24

### Bucknell University (there are no teaching evaluation scores but detailed comments at Bucknell)

5. ANOP 102: Spreadsheet Modeling & Data Analysis, In-person
  - ◊ SP21, FA20, SP20, FA19
6. ANOP 202: Operations Management, In-person
  - ◊ SP21, FA20, SP20, FA19

### Oklahoma State University

7. IEM 4013: Operations Research, In-person
  - ◊ SP19 (4.27/5)

## Grants

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- ◊ NIH Grant Submitted (Tracking Number: GRANT14170006), *Leveraging AI Technology for Early Diabetic Retinopathy Screening and Prevention Strategies*, Role: Co-Investigator, PI: Abdulaziz Ahmed, submitted in June 2024
- ◊ Summer Research Grant, *Streamlining Disease Prediction: A Novel Approach for Developing Simple yet Accurate Risk Scoring Systems in Healthcare*, \$2000, College of Business & Industry, Jacksonville State University, Summer 2024
- ◊ Summer Research Stipend, \$9300 (Summer 2022) and \$9500 (Summer 2023), College of Business & Industry, Jacksonville State University

## Selected Honors and Awards

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- ◇ Nominee for Dean's Research Award, College of Business & Industry, Jacksonville State University, August 2023 Business & Industry, Jacksonville State University, Summer 2023
- ◇ Faculty Research Activity Award, Jacksonville State University, Jacksonville, AL, April 2022, 2023, and 2024
- ◇ Second Place Prize (\$3000), Hacking Health Competition, Geisinger Medical Center, Scranton, PA, October 5, 2019.
- ◇ Selected for NFORMS Doctoral Student Colloquium, Phoenix, Arizona, November, 2018
- ◇ The Best Demo Second Runner-up Award, National Science Foundation (NSF) GENI Engineering Conference 24, Phoenix, Arizona, March 2016
- ◇ Recipient of NSF Travel Grant Award to attend GENI Conference 24, March 2016
- ◇ The Best Demo Second Runner-up Award, US Ignite & NSF GENI Engineering Conference 22, Washington D.C., March 2015
- ◇ Recipient of NSF Travel Grant Award to attend GENI Conference 22, March 2015
- ◇ Recipient of Oklahoma State University Graduate Fellowship, August 2014
- ◇ Recipient of Graduate Fellowship, Huazhong University of Science and Technology, October 2009
- ◇ Outstanding Student Award, Zhongyuan University of Technology, September 2006

## Media Coverage

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- ◇ JSU News, "*Business Students Place Sixth in Global Competition*", <https://www.jsu.edu/news/articles/2023/06/business-students-place-sixth-in-global-competition--.html>

## Service

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### Reviewer

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| ◇ European Journal of Operational Research | ◇ Computational Optimization and Applications                       |
| ◇ Computers and Operations Research        | ◇ Archives of Computational Methods in Engineering                  |
| ◇ INFORMS Journal on Applied Analytics     | ◇ Proceedings of 2021 Decision Sciences Institute Annual Conference |
| ◇ Networks                                 |   |

### Session Chair

- ◇ Network Models in Optimization and Their Applications, INFORMS 2024, 2023, 2022
- ◇ Integer Programming and Combinatorial Optimization, INFORMS 2021, 2020
- ◇ Global Optimization Algorithms–Theory and Application, INFORMS 2019

### Service at JSU

- ◇ Faculty Senator, Faculty Senate 2024-2025, April 8, 2024–Present
- ◇ Member, Policies and Campus Planning Committee, April 8, 2024–Present
- ◇ Chair, Placement & Retention Rates Committee, College of Business & Industry, April 2023–Present
- ◇ Member, Undergraduate Curriculum & AOL Committee, College of Business & Industry, Jan 2022–Present
- ◇ Member, Scholarship Committee, College of Business & Industry, February 2023–Present
- ◇ Member, Statistics Instructor Hiring Committee, College of Business & Industry, October–December, 2023

## Selected Professional Activities

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- ◇ Speaker, gave a talk “Balancing the Scale and the Accuracy of a Risk Index: An Enhanced Automatic Risk Score Generator for Health Condition Prediction” at *JSU Faculty Research Symposium 2023*, Jacksonville State University, November 2, 2023
- ◇ Speaker, gave a talk “On Detecting Fault-Tolerant Low-Diameter Clusters in Graphs” at *JSU Faculty Research Symposium 2022*, Jacksonville State University, November 3, 2022
- ◇ Participant, *Diversity Advocate Training*, Bucknell University, February 19, 2020
- ◇ Speaker, conducted a workshop “*Introduction to Python*”, sponsored by INFORMS at Oklahoma State University Student Chapter, November 17, 2017
- ◇ Speaker, conducted a workshop “*Programming with Python: Hands-On Introduction*”, sponsored by INFORMS at Oklahoma State University Student Chapter, April 7, 2017

## Professional Memberships

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- ◇ Institute for Operations Research and the Management Sciences (INFORMS)
- ◇ Production and Operations Management Society (POMS)
- ◇ Decision Sciences Institute (DSI)
- ◇ Institute of Industrial and Systems Engineers (IISE) (September 2015–January 2021)

## Computer Skills

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| ◇ <b>Programming:</b> Python, R, SQL, C++ | ◇ <b>Others:</b> Gurobi, FICO Xpress, MATLAB, High Performance Computing on Linux |
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