Carri W. Chan

Columbia Business School
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FIELD OF SPECIALIZATION

Applied Service Operations Management: Data-driven modeling and analysis of service systems with an emphasis on healthcare operations management.

ACADEMIC APPOINTMENTS

Columbia Business School, New York, NY

- John A. Howard Professor of Business 2022-
- Faculty Director, *Healthcare and Pharmaceutical Management Program* 2021-
- Full Professor, *Division of Decision, Risk and Operations* 2021-
- Sidney Taurel Associate Professor of Business 2015-2017
- Associate Professor, *Division of Decision, Risk and Operations* 2014-2021
- Assistant Professor, *Division of Decision, Risk and Operations* 2010-2014

New York Presbyterian Hospitals, New York, NY

- Visiting Researcher, *Value Institute* 2019-2020

EDUCATION

Stanford University, Stanford, CA

- *PhD* Electrical Engineering, 2010
  - Thesis title: Effective Scheduling Algorithms for Service and Computing Systems
- *MS* Electrical Engineering, 2006

Massachusetts Institute of Technology, Cambridge, MA

- *BS* Electrical Engineering, 2004

PUBLICATIONS

Journal Papers

1. Y. Hu, K. D. Cato, C. W. Chan, J. Dong, N. Gavin, S. C. Rossetti, B. P. Chang. Use of Real-Time Information to Predict Future Arrivals in the Emergency Department . *Annals of Emergency Medicine*, to appear.

2. J. Grand-Clement, C. W. Chan, V. Goyal. Robustness of Proactive ICU Transfer Policies. *Operations Research*, to appear.

3. N. Zychlinski, C. W. Chan, J. Dong. Managing Queues with Different Resource Requirements. *Operations Research*, to appear.

4. C. W. Chan, V. Sarhangian, P. Talwai, K. Gogia. Utilizing Partial Flexibility to Improve Emergency Department Flow: Theory and Implementation. *Naval Research Logistics*, 2022, pp. 1-16.

5. E. Chuang, J. Grand-Clement, J.-T. Chen, C. W. Chan, V. Goyal, M. N. Gong. Quantifying Utilitarian Outcomes to Inform Triage Ethics: Simulated Performance of a Ventilator Triage Protocol under Sars-CoV-2 Pandemic Surge Conditions. *AJOB Empirical Bioethics*, 2022, Vol. 13, No. 3, pp. 196-204.

6. Y. Hu, C. W. Chan, J. Dong, Optimal Scheduling of Proactive Service with Customer Deterioration and Improvement. *Management Science*, Vol. 68, No. 4, April 2022, pp. 2533-2578.
   - Y. Hu: Finalist 2019 IBM Best Student Paper competition

7. C. W. Chan, M. Huang, V. Sarhangian. Dynamic Server Assignment in Multiclass Queues with Shifts, with Applications to Nurse Staffing in Emergency Departments. *Operations Research*, Vol. 69, No. 6, 2021, pp. 1936-1959

8. H. B. Gershengorn, Y. Hu, J-T. Chen, S. J. Hsieh, J. Dong, M. N. Gong, C. W. Chan. The Impact of High-Flow Nasal Cannula Use on Patient Mortality and the Availability of Mechanical Ventilators in COVID-19. *Annals of the American Thoracic Society*, Vol. 18, No. 4, April 2021, pp. 623-631.

9. G. Yom-Tov, C. W. Chan. Balancing admission control, speedup, and waiting in service systems. *Queueing Systems*, Vol. 97, 2021, pp. 163–219.

10. S. Lekwijit, C. W. Chan, L. V. Green, V. X. Liu, G. J. Escobar. Impact of Step-Down Unit Care on Patient Outcomes After Intensive Care Unit. *Critical Care Explorations*, Vol. 2, No. 5, 2020, p e0114.

11. A. P. Bartel, C. W. Chan, S.-H. Kim. Should Hospitals Keep Their Patients Longer? The Role of Inpatient Care in Reducing Post-Discharge Mortality. *Management Science*, Vol. 66, No. 6, June 2020, pp. 2326-2346.

12. C. W. Chan, L. V. Green, L. Lu, S. Lekwijit, G. Escobar, Assessing the Impact of Service Level when Customer Needs are Uncertain: An Empirical Investigation of Hospital Step-Down Units. *Management Science*, Vol. 65, No. 2, February 2019, pp. 751-775.

13. W. Hu, C. W. Chan, J. R. Zubizarreta, G. J. Escobar, An Examination of Early Transfers to the ICU Based on a Physiologic Risk Score. *M&SOM*, Vol. 20, No. 3, Summer 2018, pp. 531-549.
   - Honorable Mention 2021 MSOM Responsible Research Award
   - Runner-up Industry Studies Association 2019 Ralph Gomory Best Industry Studies Paper Award
   - Runner-up 2017 INFORMS Pierskalla Award for the Best Paper in Healthcare
   - Finalist 2017 MSOM Student Paper Competition (W. Hu)

14. W. Hu, C. W. Chan, J. R. Zubizarreta, G. J. Escobar. Incorporating Longitudinal Comorbidity and Acute Physiology Data in Template Matching for Assessing Hospital Quality: an Exploratory Study in an Integrated Health Care Delivery System. *Medical Care*, Vol. 56, No. 5, May 2018, pp. 448-454.

15. H. B. Gershengorn, C. W. Chan, H. Sun, Y. Xu, M. Armony, R. Levi, M. N. Gong. The Impact of Opening a Medical Step-Down Unit on Medically Critically Ill Patient Outcomes and Throughput: A Difference-in-Differences Analysis. *Journal of Intensive Care Medicine*, March 2018.

16. M. Armony, C. W. Chan, B. Zhu, Critical Care Capacity Management: Understanding the role of a Step Down Unit. *Production and Operations Management*, Vol. 27, No. 5, 2018, pp. 859-883.

17. N. Master, C. W. Chan, N. Bambos. Myopic Policies For Non-Preemptive Scheduling Of Jobs With Decaying Value. *Probability in the Engineering and Informational Sciences*, Vol. 32, No. 1, January 2018, pp. 1-36.

18. C. W. Chan, V. F. Farias, G. Escobar. The Impact of Delays on Service Times in the Intensive Care Unit. *Management Science*, Vol. 63, No. 7, July 2017, pp. 2049-2072.

19. C. W. Chan, J. Dong, L. V. Green. Queues with Time-Varying Arrivals and Inspections with Applications to Hospital Discharge Policies. *Operations Research*. Vol. 6, No. 2, March-April 2017, pp. 469-495.

20. H. B. Gershengorn, Y. Xu, C. W. Chan, M. Armony, M. N. Gong. The Impact of Adding a Physician Assistant to a Critical Care Outreach Team. *PLOSOne*. Vol. 11, No. 12, 2016, pp. 1-14.

21. S.-H. Kim, C. W. Chan, M. Olivares, G. Escobar. Association among Intensive Care Unit Congestion, Intensive Care Unit Admission Decision, and Patient Outcomes. *Critical Care Medicine*. Vol. 44, No. 10, October 2016, pp. 1814-1821.

22. K. Xu, C. W. Chan. Using Future Information to Reduce Waiting Times in the Emergency Department. *M&SOM*. Vol. 18, No. 3, Summer 2016, pp. 314-331.

23. C. W. Chan, M. Armony, N. Bambos. Maximum Weight Matching with Hysteresis in Overloaded Queues with Setups. *Queueing Systems*. Vol. 82, No. 3, April 2016 pp. 315-351.

24. S.-H. Kim, C. W. Chan, M. Olivares, G. Escobar. ICU Admission Control: An Empirical Study of Capacity Allocation and Its Implication for Patient Outcomes. *Management Science*. Vol. 61, No. 1, January 2015, pp. 19-38.
    - Winner 2018 *Management Science* Best OM Paper Award
    - Finalist 2013 INFORMS Pierskalla Award for the Best Paper in Healthcare
    - First Place 2013 MSOM Student Paper Competition (S.-H. Kim)
    - Finalist 2013 INFORMS Health Applications Society Student Paper Competition (S.-H. Kim)

25. C. W. Chan, G. Yom-Tov, G. Escobar. When to use Speedup: An Examination of Service Systems with Returns. *Operations Research*. Vol. 62, No. 2, March-April 2014 pp. 462-482.
    - Second Place INFORMS 2012 JFIG best paper competition

26. C. W. Chan, L. V. Green, Y. Lu, N. Leahy, R. Yurt. Prioritizing Burn-Injured Patients During a Disaster. *M&SOM*. Vol. 15, No. 2, Spring 2013, pp. 170-190.
    - Finalist 2016 M&SOM Best paper award
    - First place 2011 INFORMS Section on Public Programs, Services and Needs (SPPSN) best paper competition

27. C. W. Chan, N. Bambos, J. Singh. Network Assisted Mobile Computing with Optimal Uplink Query Processing. *IEEE Transactions on Mobile Computing*. Vol. 12, No. 6, June 2013, pp. 1065-1078.

28. C. W. Chan, V. F. Farias, N. Bambos, G. Escobar. Optimizing ICU Discharge Decisions with Patient Readmissions. *Operations Research.* Vol. 60, No. 6, November/December 2012, pp. 1323-1341.

29. N. E. Leahy, R. W. Yurt, E. J. Lazar, A. A. Villacara, A. C. Rabbitts, L. Berger, C. W. Chan, L. Chertoff, K. M. Conlon, A. Cooper, L. V. Green, B. Greenstein, Y. Lu, S. Miller, F. P. Mineo, D. Pruitt, D. S. Ribaudo, C. Ruhren, S. H. Silber, L. Soloff. Burn Disaster Response Planning in New York City. *J. Burn Care and Research.* Vol. 33, No. 5, September/October 2012, pp. 587-594.

30. A. Dua, C. W. Chan, N. Bambos, J. Apostolopoulos. Channel, Deadline, and Distortion (CD^2) Aware Scheduling for Video Streams Over Wireless. *IEEE Transactions on Wireless Communications.* Vol. 9, No. 3, March 2010, pp. 1001-1011.
    - 2011 Best Journal Paper of the Year, IEEE Multimedia Communications TC

31. C. W. Chan, N. Bambos, S. Wee, J. Apostolopoulos. Scheduling Algorithms for Broadcasting Media with Multiple Distortion Measures. *IEEE Transactions on Wireless Communications.* Vol. 8, No. 8, August 2009, pp. 4188-4199.

32. C. W. Chan, V. F. Farias. Stochastic Depletion Problems: Effective Myopic Policies for a class of Dynamic Optimization Problems. *Mathematics of Operations Research.* Vol. 34, No. 2, May 2009, pp. 333 - 350.

33. C. W. Chan, S. Wee, J. Apostolopoulos. Multiple Distortion Measures for Packetized Scalable Media. *IEEE Transactions on Multimedia.* Vol. 10, No. 8, December 2008, pp. 1671-1686.

Working Papers

34. J. Grand-Clement, C. W. Chan, V. Goyal, E. Chuang. Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage.

35. Y. Hu, C. W. Chan, J. Dong. Prediction-Driven Surge Planning with Application in the Emergency Department.
    - Finalist 2022 INFORMS Doing Good with Good OR Award

36. Y. Shen, C. W. Chan, F. Zheng, M. Argenziano, P. Kurlansky. The Impact of Surgeon Daily Workload and its Implications for Operating Room Scheduling.
    - Finalist 2021 INFORMS Service Science Best Cluster Paper Award

37. Y. Shen, C. W. Chan, F. Zheng, G. Escobar. Structural Estimation of Intertemporal Externalities on ICU Admission Decisions.
    - Y. Shen: Second Place 2021 INFORMS Health Applications Society Student Paper Competition

Book Chapters

38. C. W. Chan, L. V. Green. Improving Access to Healthcare: Models of Adaptive Behavior. *Handbook of Healthcare Operations Management*, International Series in Operations Research & Management Science (Editor: B. Denton). Vol. 184, 2013, pp. 1-18.

Cases and Teaching Notes

39. C. Chan, C. D. Guetta, Columbia Business School case: *Aroma Consumer Products Co.: Managing Capacity for a Growing Company.* 2021.

40. C. Chan, C. D. Guetta, Columbia Business School case: *Continuous Quality Monitoring via Data and Analytics at The Estée Lauder Companies.* 2021.

41. O. Besbes, C. Chan, C. D. Guetta. Columbia Business School case: *At the Frontier of Retail in the 21st Century: Modern Fulfillment and The Case of FlexiWeight.* 2021.

42. C. Chan, F. Zheng, G. Santos. Columbia Business School case and teaching note: *Happy Family: Investing for the Future.* 2020.

43. L. Green, C. Chan. Columbia Business School case: *Lehigh Valley Health Network: Using a Population Health Strategy to Transform Care.* 2019.

44. C. Chan, B. Kocaman, A. Talcott-Schlaifer. Columbia Business School case and teaching note: *GE Healthcare: Managing Magnetic Resonance Operations.* 2018.

45. N. M. Fraiman, G. J. van Ryzin, C. Chan, K. Williamson. Columbia Business School case: *Intermountain Healthcare Case Study.* 2013.

46. C. Chan, A. Federgruen, R. Phillips, G. J. van Ryzin. Columbia Business School case: *How Big a Burden? Valuing General Motors' Retirement Benefits Liability.* 2013.

47. O. Besbes, L. Hublet, C. Chan. Columbia Business School case and teaching note: *Emergency Department Congestion at Saintemarie University Hospital.* 2012.

Newspaper Op-Eds

48. C. Chan (2020). How hospitals can proactively manage the anticipated coronavirus ICU surge: Providers must make smart, tough choices from the get-go. *NY Daily News.*

49. C. Chan, K. Xu (2020). #GetMePPE: Why fully equipping health care workers against coronavirus keeps us all safer. *NBCNews.com.*

50. C. Chan, J. Dong, K. Xu (2020). Using hotel for coronavirus patients would be a massive help in fighting the pandemic. *Business Insider.*

51. C. Chan, H. Gershengorn (2020). A call to revise CDC guidelines for reopening. *The Hill.*

Peer Reviewed Conference Papers

52. N. Zychlinski, C. W. Chan, J. Dong. Scheduling Queues with Simultaneous and Heterogeneous Requirements from Multiple Types of Servers. *Proceeding of the 2020 Winter Simulation Conference.*

53. C. W. Chan, S. Wee, J. Apostolopoulos. Multiple Distortion Measures for Video with Temporal Scalability. *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, pp. 2056-2059, San Diego, CA, 2008.

54. C. W. Chan, N. Bambos, J. Singh. Wireless Network-Assisted Computing. *Proceedings of the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Cannes, France, 2008.

55. C. W. Chan, N. Bambos, S.Wee, J. Apostolopoulos. Wireless Broadcasting to Diverse Users. *Proceedings of the IEEE International Conference on Communications (ICC)*, pp. 377-382, Beijing, China, 2008.

56. C. Chan, N. Bambos, S.Wee, J. Apostolopoulos. Optimal Scheduling of Media Packets with Multiple Distortion Measures. *Proceedings of the IEEE International Conference on Multimedia & Expo (ICME)*, pp. 955-958, Beijing, China, 2007.

57. C. Chan, S. Wee, J. Apostolopoulos. Multiple Distortion Measures for Scalable Streaming with JPEG2000. *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, pp. (II)705-(II)708, Honolulu, HI, 2007.

58. C. Chan, J. Apostolopoulos, Y. Li, N. Bambos. Receiver-based Optimization for Video Delivery over Wireless Links. *Proceedings of the IEEE International Conference on Multimedia & Expo (ICME)*, pp. 861-864, Toronto, ONT, 2006.

59. C. Chan, S. Wee, J. Apostolopoulos. On Optimal Embedded Schedules of JPEG-2000 Packets. *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, pp. 785-788, Atlanta, CA, 2006.

60. F. Baccelli, N. Bambos, C. Chan. Optimal Power, Throughput and Routing for Wireless Link Arrays. *Proceedings of the IEEE Conference on Computer Communications (INFOCOM)*, pp. 1-12, Barcelona, Spain, 2006.

61. A. Markopoulou, Y. Li, C. Chan, N. Bambos. Energy-Efficient Communication in Battery-Constrained Portable Devices. *International Conference on Broadband Communications, Networks, and Systems (Broadnets)*, pp. 408- 417, Boston, MA, 2005.

62. L.A. Poyneer, K. LaFortune, C. Chan. Scene-based Wave-front Sensing for Remote Imaging. *Proceedings of Society of Photo-optical Instrumentation Engineers (SPIE) 5162 Advanced Wavefront Controls*, pp. 91-102, San Diego, CA, 2003.

Other

63. J. Grand-Clement, V. Goyal, C. W. Chan, M. N. Gong, E. C. Chuang, J. Chen, P. Cuartas. Abstract: Estimation of Excess Mortality Resulting from Use of a Ventilator Triage Protocol Under Sars-CoV-2 Pandemic Surge Conditions. *American Journal of Respiratory and Critical Care Medicine,* 203(9), 2021.

64. H. B. Gershengorn, Y. Hu, J-T. Chen, S. J. Hsieh, J. Dong, M. N. Gong, C. W. Chan. Reply: Optimal Respiratory Assistance Strategy for Patients with COVID-19. *2021 Annals of the American Thoracic Society*, 18(5):917-918. 2021.

65. J. Park, K. Gogia, V. Sarhangian, C. Vasquez, S. Clark, C. Chan, R. Sharma. Abstract: Impact of Census-Based Reassignment of Nursing Staff to Reduce Emergency Department Patient Wait Times, Lengths of Stay, and Boarding Times. *Annals of Emergency Medicine* 76 (4), S14-S15, 2020.

Patents

1. C. W. Chan, S. Wee, J. Apostolopoulos. Scheduling packet transmission. *US Patent 7,684,331*, 2010.
2. S. Wee, C. W. Chan, J. Apostolopoulos. Utilizing multiple distortion measures. *US Patent 7,957,309*, 2011.

HONORS AND AWARDS

- 2022-2023 Columbia University Learning Health System Pilot Award 2022: "Development and implementation of a novel machine learning algorithm for early detection of sepsis in hospitalized patients" ($39,312).
- 2022-2024 Columbia University Provost Interdisciplinary Teaching Award (ITA). ($15,000).
- Finalist Sanjay and Panna Mehrotra Research Excellence Award 2020
- Columbia University Provost's Grant for Mid-Career Faculty who Contribute to the Diversity Goals of the University 2020
- MSOM Young Scholar Prize 2019
- INFORMS Volunteer Service Award at the Meritorious level 2016
- POMS Wickham Skinner Early Career Award 2016
- Columbia Business School, Rudolph Schoenheimer Faculty Fund 2016
- NSF CAREER Grant (2014-2019): "Managing Patient Flows with Congestion Effects" ($400,000)
- NSF/AHRQ Grant (2012-2015) with G. Escobar (Kaiser Permanente Division of Research): "Collaborative Research: Management of Transitional Care Units to Improve Hospital Outcomes" ($300,000)
- M&SOM Meritorious Service Award (2013, 2014, 2016, 2017, 2018)
- Columbia Business School, Eugene M. Lang Support Fund 2012
- Stanford Graduate Fellow (2004-2008)
- NSF Graduate Research Fellow (honorable mention) 2006

INVITED TALKS AT ACADEMIC INSTITUTIONS

- *Georgia Institute of Technology, H. Milton Steward School of Industrial and Systems Engineering*, Atlanta, GA, 2022.
- *Yale School of Management*, New Haven, CT, 2022.
- *Smeal College of Business, Pennsylvania State University*, Pittsburgh, PA, 2022.
- *Industrial and Systems Engineering Department, University of Wisconsin - Madison*, Madison, WI, 2022.
- *Department of Bioinformatics, Columbia University*, New York, NY, 2021.
- *London Business School*, London, UK, 2021.
- *Stanford Graduate School of Business*, Stanford, CA, 2021.
- *Department of Economics and Finance, LUISS*, Rome, Italy, 2021.

- *Stephen M. Ross School of Business, University of Michigan*, Ann Arbor, MI, 2021.
- *Department of Civil and Systems Engineering, Johns Hopkins University*, Baltimore, MD, 2021.
- *Wisconsin School of Business, University of Wisconsin - Madison*, Madison, WI, 2020.
- *Alberta School of Business, University of Alberta*, Alberta, Canada, 2020.
- *INSEAD*, Fountainebleau, France, 2020.
- *Roundtable on Healthcare Analytics, University of Toronto*, Toronto, Canada, 2020.
- *Anderson School of Business, UCLA*, Los Angeles, CA, 2019.
- *Operations Research Center, Massachusetts Institute of Technology*, Cambridge, MA 2019.
- *Kenan-Flagler Business School, University of North Carolina, UNC OM Healthcare Research Workshop*, Chapel Hill, NC 2019.
- *Columbia University, Data Science Day*, New York, NY 2019.
- *Robert H. Smith School of Business, University of Maryland*, College Park, MD 2019.
- *Rutgers Business School*, New Brunswick, NJ 2018.
- *Operations Research and Financial Engineering Department, Princeton University*, Princeton, NJ 2018.
- *Cornell SC Johnson College of Business*, New York, NY 2018.
- *McCombs School of Business, The University of Texas at Austin*, Austin, TX 2018.
- *Harvard Business School*, Cambridge, MA, 2017.
- *Marshall School of Business, University of Southern California*, Los Angeles, CA, 2017.
- *Tepper School of Business, Carnegie Mellon University*, Pittsburgh, PA, 2016.
- *The University of Chicago Booth School of Business*, Chicago, IL, 2016.
- *The Wharton School, University of Pennsylvania*, Philadelphia, PA, 2016.
- *Kellogg School of Management*, Evanston, IL, 2016.
- *National University of Singapore*, Singapore, 2016.
- *Kenan-Flagler Business School, University of North Carolina*, Chapel Hill, NC, 2016.
- *London Business School*, London, UK, 2016.
- *University of College London*, London, UK, 2016.
- *Cambridge University*, Cambridge, UK, 2016.
- *Baruch College*, New York, NY, 2015.
- *Electrical Engineering Department, Stanford University*, Stanford, CA, 2015.
- *Tuck School of Business, Dartmouth*, Hanover, NH, 2015.
- *Yale School of Management*, New Haven, CT, 2014.
- *The Wharton School, University of Pennsylvania*, Philadelphia, PA, 2014.
- *The Chinese University of Hong Kong*, Hong Kong, 2014.
- *Rotman School of Management, University of Toronto*, Toronto, Canada, 2013.
- *University of Waterloo*, Waterloo, Canada, 2013.

- *HAAS School of Business, University of California Berkeley*, Berkeley, CA, 2013.
- *Department of Statistics and Operations Research, University of North Carolina*, Chapel Hill, NC, 2013.
- *Fuqua School of Business, Duke (Operations Management)*, Durham, NC, 2013.
- *Hong Kong University of Science and Technology Business School*, Hong Kong, 2012.
- *Johnson School of Business, Cornell University*, Ithaca, NY, 2012.
- *Anderson School of Business, UCLA*, Los Angeles, CA, 2012.
- *Stanford Graduate School of Business*, Stanford, CA, 2012.
- *Sauder School of Business, UBC*, Vancouver, Canada, 2011.
- *Kellogg School of Management*, Evanston, IL, 2011.
- *Electrical Engineering Department, Princeton University*, Princeton, NJ, 2011.
- *IBM Thomas J. Watson Research Center*, Yorktown Heights, NY, 2010.
- *California Institute of Technology*, Pasedena, CA 2010.
- *Columbia Business School*, New York, NY 2009.
- *Stern School of Business, New York University*, New York, NY 2009.
- *Sloan School of Management, Massachusetts Institute of Technology (Operations Management)*, Cambridge, MA 2009.
- *The Chinese University of Hong Kong*, Hong Kong, 2008.
- *Northeastern University*, Boston, MA, 2007.

TEACHING EXPERIENCE

- Columbia Business School:
  - *Healthcare Management, Design, and Strategy (MBA/MD), co-taught.* Fall 2021, 2022.
  - *The U.S. Healthcare System: Structure and Strategies (MBA Elective).* Fall 2020, 2021, 2022.
  - *Operational, Economic, and Statistical Modeling in the COVID-19 Crisis (PhD), co-taught.* Fall 2020.
  - *The Analytics Advantage (MBA Elective), co-taught.* Spring 2020, 2021, 2022, 2023.
  - *Operations Management (EMBA Core).* Fall 2018.
  - *Operations Management (MBA Core).* Spring 2014, 2016, 2017, 2019, 2021, 2022, 2023. Summer 2018.
  - *Service Operations (MSE Elective).* Summer 2012. Spring 2013, 2014.
  - *Service Networks (PhD).* Summer 2011.
  - *Decision Models (MBA Core).* Summer 2010, 2011. Spring 2012, 2013.
  - Executive Education
    - *Digital Transformation in Healthcare* (Online)
    - *Digital Health Strategy* (Live Online)
    - *Health Data Science* (Live Online)
- Teaching Assistant, Stanford University:
  - *Introduction to Computer Networks.* Autumn 2008.
  - *Network Architectures and Performance Engineering.* Spring 2008, 2009.
  - *Queueing Systems and Processing Networks.* Autumn 2007, 2009.

PROFESSIONAL ACTIVITIES AND SERVICE

- *Department Editor*:
  - Management Science – Healthcare Management (2020-)
- *Associate Editor*:
  - Management Science (2017-2020)
  - Manufacturing & Service Operations Management (2018-2020)
  - Operations Research (2018-2020)
  - Naval Research Logistics (Special Issue on Healthcare) (2018-2020)
- *Technical Reviewer*: Journal of Health Economics, Management Science, Mathematics of Operations Research, Manufacturing & Service Operations Management, Medical Care, Operations Research, Production and Operations Management, Naval Research Logistics, INFORMS Journal on Computing, Interfaces, Annals of the American Thoracic Society, The International Journal of Management Science, PLOSOne
- *Committee member*: MSOM Young Scholar Prize Committee (2020)
- *Committee member*: INFORMS Lanchester Prize Award Committee (2020-2021)
- *Committee member*: *M&SOM* Journal Editor-in-chief search committee (2020)
- *Judge*: INFORMS George Nicholson Student Paper Competition (2017)
- *Judge*: INFORMS Public Sector Operations Research Best Paper Competition (2016, 2018, 2020)
- *Judge*: Bonder Scholarship for Applied Operations Research in Health Services (2016, 2018)
- *Judge*: POMS College of Healthcare Operations Management (CHOM) Best Paper Competition (2016)
- *Healthcare Operations SIG Chair*: MSOM (2015-2016)
- *Council Member*: Applied Probability Society (2014-2015)
- *Co-Chair*: Doing Good with Good OR student competition (2014)
- *Committee Member*: Doing Good with Good OR student competition (2013, 2015)
- *Judge*: INFORMS Health Application Society student paper (2013 ,2015)
- *Judge*: MSOM Student Paper Competition (2010, 2011, 2012, 2013, 2014, 2015, 2016, 2020)
- *Judge*: POMS College of Healthcare Operations Management (CHOM) Best Paper Award (2018)
- *Conference organizing committee member*: M&SOM conference 2012, MSOM Healthcare SIG conference (2014, 2016), Workshop on Empirical Research in Operations Management (2020, 2021, 2022)
- *Panelist for grant reviews*: National Science Foundation, Natural Sciences and Engineering Research Council of Canada (NSERC), Research Grants Council (RGC) of Hong Kong
- *Columbia Business School*:
  - *Columbia Presidential Search Advisory Committee of Faculty* (2022-2023)
  - *Diversity, Equity, and Inclusion standing committee* (2020-)
  - *Racism, Diversity, and Inclusion Task Force* (2020-2021)

- *Manhattanville Planning Committee* (2019-2020)
- *Diversity Task Force* (2018-2019)
- *Promotion & Tenure Process Committee* (2018-2019)
- *Post-doctoral Search Committee*, Division of Decision, Risk, and Operations (2017,2020)
- *PhD Coordinator*, Division of Decision, Risk, and Operations (2015-2018)
- *Faculty Search Committee*, Division of Decision, Risk, and Operations (2012, 2015, 2016, 2017, 2020)

- *Professional Memberships*: INFORMS
- *Select Media Mentions*: Axios, Bloomberg Law, Business Insider, CBSNews, Chicago Tribune, CNBC, Financial Times, Fox News, Gothamist, Market Place, MSNBC, Modern Healthcare, NY Magazine, NY Times, Reuters, USA Today, Vox.

STUDENT ADVISING AND COLLABORATIONS

- Jimmy Qin (co-advisor with J. Dong and P. Glasserman)
- Yue Hu (2022, co-advisor with J. Dong). First position: Stanford Graduate School of Business (post-doc at University of Chicago Booth School of Business).
- Yiwen Shen (2021, co-advisor with F. Zheng and P. Glasserman). First position: Hong Kong University of Science and Technology Business School.
- Julien Grand-Clement (2021, co-advisor advisor V. Goyal). First position: HEC Paris.
- Yunchao Xu (NYU 2020, Primary advisor M. Armony). First position: Morgan Stanley.
- Wenqi Hu (2018, co-advisor with J. Zubizaretta). First position: Uber.
- Lijian Lu (2016, Primary advisors A. Federgruen and G. Weintraub). First position: Goldman Sachs.
- Song-Hee Kim (2014, co-advisor with M. Olivares and W. Whitt). First position: University of Southern California Marshall School of Business (post-doc at Yale School of Management).
- Kuang Xu (MIT 2014. Primary advisor J. Tsitsiklis). First position: Stanford Graduate School of Business (post-doc at Microsoft Research - Inria).
- Bo Zhu (Courant Institute, NYU 2013. Primary advisor J. Goodman). First position: Credit Suisse.
- Yina Lu (2013, Primary advisors M. Olivares and L. V. Green). First position: post-doc at University of Pennsylvania Wharton School of Business.
- Thesis committee member: Yunan Liu (2011), Sharon Huang (expected 2022), Suparerk Lekwijit (Wharton, 2021)

POST-DOCTORAL FELLOW ADVISING

- Minje Park (2022-2024)
- Vahid Sarhangian (2015-2017). First position: University of Toronto, Mechanical & Industrial Engineering.
- Noa Zychlinski (2018-2020). First position: Technion Israel Institute of Technology, Industrial Engineering and Management.

OUTSIDE ACTIVITIES

Columbia Business School requires its faculty members to disclose any activities that might present a real or apparent conflict of interest. The list below complies with this requirement.

- Research Collaborations:
  - *New York City Burn Project (2010-2011).* Development of patient transfer policies for disaster planning. Supported by the U.S. Department of Health and Human Services Grants by way of the Fund for Public Health in New York.
  - *Kaiser Permanente (2009-2022).* Analysis of patient flow data and development of decision support systems for ICU care. Supported in part by the National Science Foundation grant (CMMI 1233547 and CMMI 1350059).
  - *Montefiore Medical Center (2014-2018).* Analysis of new Progressive Care Unit.
  - *NY Presbyterian (2015-present).* Analytic models of the Emergency Department. Models for Acuity-based Staffing. Length-of-Stay Task Force. On sabbatical leave from Columbia Business School as visiting researcher with the NYP Value Institute for academic year 2019-2020.
  - *Montefiore Medical Center (2020-).* Analysis of Mechanical Ventilation use in COVID-19.
  - *Irving Institute for Clinical and Translational Research(2022-).* Internal Advisory Committee.
- Speaking Engagements:
  - *St. Luke's Decision-Making in Clinical Medicine Symposium.* 2011.
  - *Stanford University Clinical Excellence Research Center.* 2011, 2012, 2013.
  - *Columbia University Medical Center Division of General Medicine research conference.* 2014.
  - *Montefiore Medical Center Critical Care Medicine grand rounds.* 2014.
  - *Columbia University Medical Center Center for Behavioral Cardiovascular Health petite rounds.* 2016.
  - *NY Presbyterian Value Institute Research and Evaluation seminar.* 2018.
  - *NY Presbyterian, Columbia University Medical Center Critical Care Grand Rounds.* 2019.
  - *Hackensack University Medical Center Emergency Medicine Seminar.* 2020.
- Other:
  - *Welch, Carson, Anderson, & Stowe.* Physician Leadership Program, 2022. Presenting concepts and examples of Operations Management as well as process and quality improvement in healthcare to physicians in WCAS portfolio companies.