Jing Dong

Contact Information

Columbia Business School, Kravis Hall 932
665 W 130th Street, New York, NY 10027
Email: jing.dong@gsb.columbia.edu
Last updated: Dec 2025

Academic Appointments

Columbia Business School, New York, NY
Decision, Risk, and Operations Division

DeRosa Family Associate Professor of Business (with tenure)	Jul 2024 - present
DeRosa Family Associate Professor of Business	Jan 2024 - Jun 2024
Regina Pitaro Associate Professor of Business	Jul 2020 - Dec 2023
Assistant Professor	Jul 2017 - Jun 2020

Northwestern University, Evanston, IL
Department of Industrial Engineering and Management Sciences

Assistant Professor	Sep 2014 - Jun 2017

Education

Columbia University, New York, NY — 2009 - 2014
Ph.D., Operations Research

Hong Kong University, Hong Kong — 2006 - 2009
B.Sc. with First Class Honors, Actuarial Science

Publications

"Waiting online versus offline: An empirical study on visit incompletion in outpatient clinics", with J. Qin, C. Chan, S. Homma, and S. Ye, , *Manufacturing & Service Operations Management, 2025, Vol. 27, No. 5*

- J. Qin, Finalist, 2024 POMS College of Service Operations Management Best Student Paper Competition
- J. Qin, Finalist, 2023 INFORMS Service Science Best Student Paper Competition
- J. Qin, Finalist, 2023 INFORMS Health Application Society Student Paper Competition

"Implementing a prediction driven framework for emergency department nurse staffing to optimize real time decisions ", with Y. Hu, C. Chan, A. Kazekjian, C. Ophaswongse, G. Sugalski, J. Underwood, and R. Perotte, *npj Health Systems, 2025, Vol. 2, No. 16*

"Shortest-job-first scheduling in many-server queues with impatient customers and noisy service-time estimates ", with R. Ibrahim, *Operations Research, 2025, Vol 73, No. 6*

"A primal-dual algorithm to constrained Markov decision processes with applications to queue scheduling and inventory management ", with Y. Chen, Z. Wang, and C. Zhang, *Management Science, to appear*

"Optimal routing under demand surges: the value of future arrival rates", with J. Chen and P. Shi, *Operations Research, 2025, Vol. 73, No. 1*

- J. Chen, Finalist, 2021 IBM Best Student Paper Competition

"Convergence speed and approximation accuracy of numerical MCMC", with T. Cui, A. Jasra, and T.X. Tong, *Advances in Applied Probability, 2025, Vol. 51*

"Prediction-driven surge planning with applications in the Emergency Department", with Y. Hu and C. Chan, *Management Science, 2025, Vol. 71 No. 2*

- Y. Hu, Finalist, 2022 Doing Good with OR Student Paper Competition

"Managing flexibility: optimal sizing and scheduling of flexible servers", with J. Chen, *Queueing Systems, 2024, Vol. 108*

"Beyond order-based nursing workload: A retrospective cohort study in intensive care units", with Y. Chen, C. Chan, E.M. Jackson, N.H. Yip, S.C. Rossetti, *Journal of Nursing Scholarship, 2024, Vol. 56, Issue 5*

"What causes delays in admission to rehabilitation care? A structural estimation approach", with Gorgulu B., and Sarhangian V., *Manufacturing & Service Operations Management, 2024, Vol. 26, No. 2*

"Uncertainty quantification and exploration for reinforcement learning", with Y. Zhu and H. Lam, *Operations Research, 2024, Vol. 72, No. 4*

"Telemedicine is associated with reduced socioeconomic disparities in outpatient clinic no-show", with J. Qin, C. Chan, S. Homma, and S. Ye, *Journal of Telemedicine and Telecare, 2024, Vol. 30, No. 9*

"Managing queues with different resource requirements", with N. Zychlinski and C. Chan, *Operations Research, 2023, Vol. 71, No. 4*

"Use of real-time information to predict future arrivals in the Emergency Department", with Y. Hu, C. Chan, K. Cato, N. Gavin, S. Rossetti, and B. Chang, *Annals of Emergency Medicine, 2023, Vol. 81 No. 6*

"Association between delayed discharge from acute care and rehabilitation outcomes and length-of-stay: a retrospective cohort study", with B. Gorgulu, K. Hunter, K. Bettio, B. Vukusic, J. Ranisau, G. Spencer, T. Tang, and V. Sarhangian, *Archives of Physical Medicine and Rehabilitation, 2023, Vol. 104, No. 1*

"Spectral gap of replica exchange Langevin diffusion on mixture distributions", with X. Tong, *Stochastic Processes and their Applications, 2022, Vol. 151*

"Asymptotic optimality of the Binomial-exhaustive policy for polling systems with large switchover times", with Y. Hu and O. Perry, *Annals of Applied Probability, 2022, Vol. 32, No. 6*

- Y. Hu, 2020 INFORMS APS Best Student Paper Award

"Metastability in queues", *Queueing Systems, Special Issue: 100 views on queues, 2022*

"Exact sampling for the maximum of infinite memory Gaussian processes", with J. Blanchet and L. Chen, *Advances in Modeling and Simulation, 2022, Springer*

"Optimal scheduling of proactive service with customer deterioration and improvement", with Y. Hu and C. Chan, *Management Science, 2022, Vol. 68, No. 4*

- Y. Hu, Finalist, 2019 IBM Best Student Paper Competition
- Finalist, 2024 MSOM Service Management SIG Best Paper Award

"Replica exchange for non-convex optimization", with X. Tong, *Journal of Machine Learning Research, 2021, Vol. 22*

"SRPT scheduling discipline in many-server queues with impatient customers", with R. Ibrahim, *Management Science, 2021, Vol. 67, No. 12*

"Use of a novel patient-flow model to optimize hospital bed capacity for medical patients", with Y. Hu, O. Perry, R.M. Cyrus, S. Gravenor, and M.J. Schmidt, *The Joint Commission Journal on Quality and Patient Safety, 2021, Vol. 47, Issue 6*

"The impact of high-flow nasal cannula use on patient mortality and the availability of mechanical ventilators in COVID-19", with H.B. Gershengorn, Y. Hu, J.-T. Chen, S.J. Hsieh, M.N. Gong, C.W. Chan, *Annals of the American Thoracic Society, 2021, Vol. 18, Issue 4*

"ϵ-Strong simulation for fractional Brownian motion and related stochastic differential equations", with Y. Chen and H. Ni, *Mathematics of Operations Research, 2021, Vol. 46, No. 2*

"A Survey on skill-based routing with applications to service operations management", with J. Chen and P. Shi, *Queueing Systems, 2020, Vol. 96, Issue 1-2*

"Managing supply in the on-demand economy: flexible workers, full-time employees, or both?" with R. Ibrahim, *Operations Research, 2020, Vol. 68, No. 4*

"Queueing models for patient-flow dynamics in inpatient wards", with O. Perry, *Operations Research, 2020, Vol. 68, No. 1*

"The impact of delay announcements on hospital network coordination and waiting times", with E. Yom-Tov and G. Yom-Tov, *Management Science, 2019, Vol. 65, No. 5*

"Exact sampling of the infinite horizon maximum of a random walk over a non-linear boundary", with J. Blanchet and Z. Liu, *Journal of Applied Probability, 2019, Vol. 56, Issue 1*

"Perfect sampling of GI/GI/c queues", with J. Blanchet and Y. Pei, *Queueing Systems, 2018, Vol. 90, Issue 1-2*

"ϵ-Strong simulation for multidimensional stochastic differential equations via Rough Path analysis", with J. Blanchet and X. Chen, *Annals of Applied Probability, 2017, Vol. 27, No. 1*

"Queues with time-varying arrivals and inspections with applications to hospital discharge policies", with C. Chan and L. Green, *Operations Research, 2017, Vol. 65, No. 2*

"Service systems with slowdowns: potential failures and proposed solutions", with P. Feldman and G. Yom-Tov, *Operations Research, 2015, Vol. 63, No. 2*

"Perfect sampling for infinite server and loss systems", with J. Blanchet, *Advances in Applied Probability, 2015, Vol. 47, Issue 3*

Working papers

"Measuring the heterogeneous effect of emergency department boarding on inpatient length of stay: toward efficient and equitable inpatient bed assignment", with A. Liu, Y. Berlyand, M. Copenhaver

"Right-sizing communication and recommendation set size in AI-assisted search", with P. Jhunjhunwala and Y. Kanoria

"Data-driven stochastic modeling using autoregressive sequence models: Translating event tables to queueing dynamics", with D. Mittal, S. Zheng, H. Namkoong

"Optimal congestion signaling under customer heterogeneity and demand variation", with P. Jhun-

jhunwala and Y. Kanoria

"Differentiable discrete event simulation for queuing network control", with E. Che and H. Namkoong

"Value of sparse structures in dynamic reusable resource allocation with waiting", with Y. Hu and S. Wang

"Stochastic gradient descent with adaptive data", with E. Che and X. Tong

"The impact of historical workload on the nurses' perceived workload", with C. Chan, Y. Chen, S. Rossetti

"Structural estimation of load balancing behavior in inpatient ward network", with P. Shi, F. Zheng, and X. Jin

"Existence and approximations of moments for polling systems under the Binomial-exhaustive policy", with Y. Hu and O. Perry

"Asymptotic optimality of base-stock policies with idle times for stochastic economic lot scheduling problems ", with Y. Hu and O. Perry

"Scheduling with service-time information: the power of two priority classes", with Y. Chen

- Honorable Mention, 2020 INFORMS JFIG Paper Competition

"Off-service placement in inpatient ward network: resource pooling versus service slowdown", with P. Shi, F. Zheng and X. Jin

- Second Place, 2020 POMS College of Healthcare Operations Management Best Paper Award

"A new approach to sequential stopping for stochastic simulation", with P. Glynn

PEER REVIEWED CONFERENCE PROCEEDINGS

"QGym: Scalable simulation and benchmarking of queuing network controllers", with H. Chen, A. Li, E. Che, T. Peng, H. Namkoong, *Proceedings of the 2024 Neural Information Processing Systems Conference Datasets and Benchmarks Track*

"On constructing confidence region for model parameters in stochastic gradient descent via batch means", with Y. Zhu, *Proceedings of the 2021 Winter Simulation Conference*

"Scheduling Queues with Simultaneous and Heterogeneous Requirements from Multiple Types of Servers ", with N. Zychlinski and C. Chan, *Proceedings of the 2020 Winter Simulation Conference*

"The asymptotic validity of sequential stopping rules for confidence interval construction using standardized time series", with P. Glynn, *Proceedings of the 2019 Winter Simulation Conference*

"On the almost sure convergence rate for a series expansion of fractional brownian motion", with Y. Chen, *Proceedings of the 2019 Winter Simulation Conference*

"Accelerating nonconvex learning via replica exchange Langevin diffusion", with Y. Chen, J. Chen, J. Peng and Z. Wang, *2019 International Conference on Learning Representations*

"Unbiased metamodeling via likelihood ratios", with M.B. Feng and B. Nelson, *Proceedings of the 2018 Winter Simulation Conference*

"Three asymptotic regimes for ranking and selection with general sample distributions", with Y.

Zhu, *Proceedings of the 2016 Winter Simulation Conference*

"Sampling point processes on stable unbounded regions and exact simulation of queues", with J. Blanchet, *Proceedings of the 2012 Winter Simulation Conference*

Grants

Columbia 2025 Interdisciplinary Seed Grant. Title "Multimodal AI for Healthcare Transformation: Navigating Operational, Privacy, and Ethical Challenges", Role: co-PI (PI: Maxim Topaz)

Columbia Provost's Grants Program for Junior Faculty who Contribute to the Diversity Goals of the University. Title "Improving Proactive Care and Post-Discharge Care", Jul 2020 - Jun 2022, Role: PI

National Science Foundation CMMI-1944209. Title: "CAREER: Improving Operational Decision Making with Predictive Information and Data". Duration: Mar 2020 - Feb 2025, Role: PI

National Science Foundation CMMI-1762544. Title: "Collaborative Research: GOALI: Improving Patient Flow in Hospitals". Duration: Aug 2018 - Jul 2021. Role: PI (Lead PI: Ohad Perry, Industry Co-PI: Stephanie Gravenor at Northwestern Memorial Hospital)

National Science Foundation DMS-1720433. Title: "Collaborative Research: Tolerance-Enforced Simulation of Stochastic Processes". Duration: Sep 2017 - Aug 2020. Role: PI (Lead PI: Jose Blanchet)

National Science Foundation CMMI-1634982. Title: "Green Simulation: A Methodology for Reusing the Output of Past Computer Simulation Experiments". Duration: Jan 2017 - Dec 2019. Role: co-PI (PI: Barry Nelson)

Invited talks in Academic Institutions

Wharton School, University of Pennsylvania, 2025
Haas School of Business, University of California Berkeley, 2025
CanQueue 2025, Ivey Business School, Western University, London, Canada, 2025
Analytics for Impact Symposium, SC Johnson College of Business, Cornell University, 2025
Department of Industrial and System Engineering, University of Minnesota, 2025
Kellogg School of Management, Northwestern University, 2025
Rotman School of Management, University of Toronto, 2025
Harvard Business School, 2024
SGD: stability, momentum acceleration and heavy tails Workshop, Alan Turing Institute, London, UK, 2024
Data-Driven Queueing Challenges Workshop, Eurandom, Eindhoven, The Netherlands, 2024
Healthcare Analytics Workshop, Miami Herbert Business School, University of Miami, 2024
Antai College of Economics and Management, Shanghai Jiaotong University, 2024
Department of Industrial & Systems Engineering, University of Southern California, 2024
Probability Seminar, City University of New York, 2023
Department of Computer Science, Duke University, 2023
Rady School of Management, University of California San Diego, 2023
Questrom School of Business, Boston University, 2023
Jones Graduate School of Business, Rice University, 2023
Stern School of Business, New York University, 2023
College of Business, Stony Brook University, 2023
School of Management, University College London, 2023
London Business School, 2023
6th Annual Research Roundtable: Data Analytics in Healthcare, Rotman School of Management, University of Toronto, 2023
Analytics for Improved Healthcare Workshop, Institute for Mathematical and Statistical Innovation,

University of Chicago, 2023
Kellogg School of Management, Northwestern University, 2022
Department of Operations Research and Information Engineering, Cornell University, 2022
Business School, Imperial College London, 2022
Booth School of Business, University of Chicago, 2022
Department of Information Engineering and Operations Research, Columbia University, 2022
New York City Operations Day, Cornell Tech, 2022
Business School, Chinese University of Hong Kong, 2022
Chinese University of Hong Kong, Shenzhen, 2022
Workshop on Applications of Rough Paths: Computational Signatures and Data Science, ICERM, Brown University, 2021
Data Science Lab, MIT, 2021
Department of Industrial Engineering and Operations Research, UC Berkeley, 2021
Marshall School of Business, University of Southern California, 2021
Graduate School of Business, Stanford University, 2021
Eindhoven University of Technology, 2020
Department of Mathematics, KTH Royal Institute of Technology, 2020
Mathematical Institute, University of Oxford, 2020
Business School, Hong Kong University, 2020
Rutgers Business School, 2020
Sloan School of Management, MIT, 2020
Peking University, Beijing, China, 2020
Department of Information Engineering and Operations Research, Columbia University, 2019
McCombs School of Business, University of Texas at Austin, 2019
Sauder School of Business, University of British Columbia, 2019
Workshop on Data Analytics in Healthcare and Service Operations, Chinese University of Hong Kong, Shenzhen, 2019
Department of Industrial Engineering and Decision Analytics, Hong Kong University of Science and Technology, 2019
Peking University, Beijing, China, 2019
Mathematical Institute, University of Oxford, 2018
School of Management, University College London, 2018
Mostly OM Workshop, Tsinghua University, 2018
IBM Thomas J. Watson Research Center, 2018
Berkeley-Columbia Meeting in Engineering and Statistics, Columbia University, 2018
Department of Industrial and System Engineering, University of Minnesota, 2017
School of Industrial and System Engineering, Georgia Tech, 2017
Graduate School of Business, Columbia University, 2017
Fuqua School of Business, Duke University, 2016
Department of Industrial and Systems Engineering, North Carolina State University, 2016
Retrospective Monte Carlo Workshop, Center for Research in Statistical Methodology, Warwick University, 2016
Department of Mathematics, University of Virginia, 2016
Applied Mathematics Colloquium, Illinois Institute of Technology, 2015
IBM Thomas J. Watson Research Center, 2014
Department of Industrial Engineering and Management Sciences, Northwestern University, 2014
Department of Industrial Engineering, University of Pittsburgh, 2014
Department of Industrial and Operations Engineering, University of Michigan, 2014
National University of Singapore, 2014
Singapore University of Technology and Design, 2014

Teaching Experience

Columbia University, New York, NY, USA
Instructor, Graduate School of Business — Sep 2017 - present

- B6100 Managerial Statistics (MBA Core)
- B9150 Foundations of Operations Management (PhD Core)
- B9323 Introduction to Econometrics and Statistical Inference (PhD Elective)
- B9137 DRO Topic Seminar (PhD Elective)

Northwestern University, Evanston, IL, USA
Searle Fellow 2015

Instructor, Industrial Engineering and Management Sciences Sep 2014 - Jun 2017

- IEMS 435 Introduction to Stochastic Simulation (Ph.D. Core)
- IEMS 303 Statistics (Undergraduate)
- IEMS 315 Stochastic Models and Simulation (Undergraduate)

PH.D. STUDENT

Yi Zhu (2020, Northwestern)

- Thesis: Asymptotic uncertainty quantification for models and its application in efficient learning
- First position: WeRide

Yi Chen (2021, Northwestern, co-advised with Zhaoran Wang)

- Thesis: Algorithms for data-driven decision making
- First position: Assistant Professor at Hong Kong University of Science and Technology

Yan Chen (2022, Columbia, co-advised with Ward Whitt)

- Thesis: Extremal queueing theory
- First position: Balyasny Asset Management

Yue Hu (2022, Columbia, co-advised with Carri Chan and Ohad Perry)

- Thesis: Utilizing predictive analytics in the operational design and control of healthcare systems
- First position: Assistant Professor at Stanford University

Jinsheng Chen (2022, Columbia)

- Thesis: Essays on skills-based routing
- First position: Singapore Institute of Manufacturing Technology

Berk Gorgulu (2023, University of Toronto, co-advised with Vahid Sarhangian)

- Thesis: Stochastic and empirical models in support of managing patient flow from acute to rehabilitation care
- First position: Assistant Professor at McMaster University

Jimmy Qin (2024, Columbia, co-advised with Carri Chan and Paul Glasserman)

- Thesis: Empirical and behavioral operations management of digital healthcare and FinTech
- First position: Assistant Professor at University of Texas at Dallas

Ethan Che (2025, Columbia, co-advised with Hongseok Namkoong)

- Thesis: Reinforcement learning via differentiable simulation: applications in operations management
- First position: Meta

Alyssa Liu (2026, New York University, co-advised with Mor Armony and Rouba Ibrahim)

Daksh Mittal (2027, Columbia University, co-advised with Hongseok Namkoong)

Kevin Wang (2029, Columbia University, co-advised with Carri Chan)

POST-DOCTORAL FELLOW

Noa Zychlinski (2018-2020), (Columbia, co-advised with Carri Chan).

- First position: Assistant Professor at Technion

Prakirt Jhunjhunwala (2023-2025), (Columbia, co-advised with Yash Kanoria).

- First position: Amazon

PH.D. THESIS COMMITTEE

Haofeng Zhang (2024, Columbia), Likang Ding (2024, University of Alberta), Tony Zhang (2024, Columbia), Yunbei Xu (2023, Columbia), Jingtong Zhao (2021, Columbia), Yeqing Zhou (2021, Columbia), Julien Grand-Clement (2021, Columbia), Zhi Wang (2021, Columbia), Fengpei Li (2021, Columbia), Huajie Qian (2020, Columbia), Zhipeng Liu (2018, Columbia), Fei He (2018, Columbia), Yanan Pei (2018, Columbia), Yutian Nie (2017, Northwestern), Likuan Qin (2017, Northwestern), Aya Wallwater (2015, Columbia)

RELATED WORKING EXPERIENCE

Massachusetts General Hospital, Boston, MA — 2022 - present
Research Consultant, Healthcare Systems Engineering

Alan Turing Institute, London, UK
Researcher, Analysing noisy data streams — 2018 - 2020

Northwestern Memorial Hospital, Chicago, IL
Research Consultant, Capacity Planning, — Jun 2017 - Aug 2017

Northwestern University, Evanston, IL
Co-producer, Engineering Transdisciplinary Outreach Project in the Arts (ETOPiA), — 2016 - 2017

Stanford University, Stanford, CA
Visiting researcher, Management Science and Engineering, — Oct 2014 - Dec 2014

Technion, Haifa, Israel
Visiting researcher, Industrial Engineering and Management, — May 2013 - Jun 2013

Institute for Computational and Experimental Research in Mathematics, Providence, RI, USA
Visiting researcher, Computational Challenges in Probability, — Sep 2012 - Dec 2012

Bank of China, Beijing, China
Research intern, Strategic Development, — Jul 2008 - Aug 2008

PROFESSIONAL ACTIVITIES

Associate Editor for:

Mathematics of Operations Research,	2020 - present
Manufacturing and Service Operations Management,	2021 - present
Operations Research Letters,	2021 - present
Operations Research,	2022 - present
Management Science,	2022 - present

Reviewer for:
Operations Research, *Management Science*, *Manufacturing and Service Operations Management*, *Mathematics of Operations Research*, *Queueing Systems*, *Stochastic Systems*, *INFORMS Journal on Computing*, *Journal of Applied Probability*, *Bernoulli*, *IEEE Transactions on Automatic Control*, *IEEE Transactions on Automation Science and Engineering*, *Journal of American Statistical Association*, *ACM Transactions on Modeling and Computer Simulation*, *Naval Research Logistics*, *IISE Transactions*, *Operations Research for Health Care*, *Research in Mathematical Sciences*, *SIAM*

Journal on Mathematics of Data Science

Peer Review for:
National Science Foundation (NSF)
Natural Sciences and Engineering Research Council of Canada (NSERC)
Research Grants Council of Hong Kong
Israel Science Foundation (ISF)

Organizing Committee of 2017 INFORMS Applied Probability Society Conference
Track co-Chair of 2019 INFORMS Annual Meeting Applied Probability Track
Track co-Chair of 2020 INFORMS Annual Meeting MSOM Service Management SIG Track
Track co-Chair of 2021 INFORMS Healthcare Conference Applied Probability Track
Organizing Committee of 2021 Columbia Applied Probability Days
Cluster co-Chair of 2022 CORS/INFORMS International Queueing Theory SIG
Co-Chair of 2022 MSOM Service Management SIG Conference
Co-Chair of 2022 INFORMS George Nicholson Student Paper Competition
Organizing Committee of IMSI long program on Mathematics, Statistics, and Innovation in Medical and Health Care
Organizing Committee of Banff International Research Station workshop on New Interfaces of Stochastic Analysis and Rough Paths
Organizing Committee of SNAPP seminar series, 2021-2022
Organizing Committee of WINDSMATH seminar series, 2023 - present
Co-Chair of 2023 INFORMS JFIG Paper Competition
Organizing Committee of 2025 NeurIPS MLxOR workshop
Co-Chair of 2026 MSOM Healthcare SIG Conference

Council Member of INFORMS Applied Probability Society, 2018 - 2020
Vice Chair of INFORMS Applied Probability Society, 2024 - present

Paper competition committee member for:
INFORMS Applied Probability Society Best Student Paper Competition, 2018, 2019
INFORMS George Nicholson Student Paper Competition, 2021
INFORMS Service Science Best Cluster Paper Award, 2021
INFORMS MSOM Service Management SIG Best Paper Award, 2025

Program committee member for:
Winter Simulation Conference, 2018 - 2023
IFIP Performance, 2021

Outside activities

Columbia Business School requires its faculty members to disclose any activities that might present a real or apparent conflict of interest. Here is the list of my outside activities.

Research Collaborations:

- **Northwestern Memorial Hospital**, Chicago, IL — Jun 2017 - Jun 2022
  Analysis of patient flow data and developing algorithms for capacity planning of different inpatient units.

- **New York Presbyterian Hospital**, New York, NY — Jan 2019 - present
  Analysis of patient flow, nurse staffing, and telehealth operations
  Telehealth scheduling

- **Credit Valley Hospital**, Mississauga, ON — Oct 2020 - Jun 2022
  Analysis of patient flow from acute to rehabilitation care

- **Hackensack University Medical Center**, Hackensack, NJ — Apr 2021 - May 2025
  Analysis of prediction-driven ED staffing policy

- **Massachusetts General Hospital**, Boston, MA Jun 2022 - present
  Analysis of surge planning