David D. Yao

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Department of Industrial Engineering and Operations Research
302 Mudd Building, Columbia University, New York, NY 10027-6699
Tel: 212-854-2934; Fax: 212-854-8103; E-mail: yao@columbia.edu
URL: http://www.columbia.edu/∼yao

Education

Ph.D. (Industrial Engineering and Operations Research), University of Toronto, 1981-83.

M.A.Sc. (Industrial Engineering and Operations Research), University of Toronto, 1980-81.

Academic Appointments

- *Columbia University:*

  Piyasombatkul Family Professor of Industrial Engineering and Operations Research, 2012- ;

  Thomas Alva Edison Professor of Industrial Engineering and Operations Research, 1992-98;

  Professor of Industrial Engineering and Operations Research, 1988–2012.

  Assistant Professor of Industrial Engineering and Operations Research, 1983-86.

- *Harvard University:* Associate Professor of Systems Engineering, 1986-88.

Honors and Awards

- Presidential Award for Outstanding Teaching, Columbia University, 2024.
- Senior Fellow, Institute for Advanced Study, City University of HK, 2015 – ; Founding Director 2015-18.
- Markov Lecture, INFORMS Applied Probability Society, 2015.
- Member, National Academy of Engineering, 2015.
- Great Teacher Award, Society of Columbia Graduates, 2012.
- Distinguished Faculty Teaching Award, Columbia Engineering Alumni Association, 2009.
- IBM Faculty Award, IBM Corporation, 2005.
- Fellow, Institute for Operations Research and the Management Sciences, 2005.
- SIAM Outstanding Paper Prize, Society for Industrial and Applied Mathematics, 2003.
- Franz Edelman Award (first prize), Institute for Operations Research and Management Sciences, 1999.
- Outstanding Technical Achievement Award, IBM Research, 1999.
- Fellow, Institute of Electrical and Electronics Engineers, 1997.

- IBM Research Division Award, 1996.
- Invention Achievement Award, IBM Research, 1992, 1996, 1997, 1999, 2000, 2005, 2009.
- Guggenheim Fellow, John Simon Guggenheim Foundation, 1991/92.
- Presidential Young Investigator, National Science Foundation, 1987-92.
- George E. Nicholson, Jr. Memorial Award
  1st prize; Operations Research Society of America, 1983.
- Ontario Graduate Scholarship, 1982/83;
  University of Toronto Open Doctoral Fellowship, 1981/82;
  University of Toronto Open Masters Fellowship, 1980/81.

Research Grants

As Principal Investigator/Project Director:

- Columbia and CityU/HK collaborative project, InnoHK Lab AIFT (AI-Powered Fintech), 5-year project, starting July 1, 2021 (Columbia's share for the five year period: $4,000,000).
- NSF-CMMI-1462495, "A Dynamic Model for Systemic Risk in Networks Subject to Contagion" ($302,875 for three years, starting July 1, 2015).
- NSF-CMMI-0969328, "Dynamic Scheduling and Resource Control in Stochastic Processing Networks: Beyond Priority Rules," ($325,000 for three years, starting June 1, 2010).
- NSF-CNS-0325495, "P2P Network Theory," ($982,292 for five years, starting September 15, 2003; with Dan Rubenstein).
- NSF-DMI-0085124, "Multi-Product Assemble-to-Order Systems: Performance Analysis and Supply Chain Optimization," ($220,000 for three years, starting October 1, 2000).
- NSF-ECS-9705392, "Dynamic Scheduling and Resource Management of Parallel Processors," ($180,000 for three years, starting October 1, 1997).
- NSF-DMS-9631392, "Center for Applied Probability: Infrastructure Support for an Interdisciplinary Center" ($1,000,000 for five years, starting September 1, 1996; with Chris C. Heyde).
- NSF-DMI-9523029, "Process Control: Dynamics and Coordination" ($179,000 for three years, starting October 1, 1995).
- NSF-MSS-9216490, "Intelligent Control Initiative: Monotone Control of Discrete-Event Systems" ($200,000 for three years, starting September 1, 1992; with Paul Glasserman).
- NSF-DDM-9108540, "Stochastic Convexity in Queueing Networks and Its Applications, Phase II" ($120,000 for two years, starting September 1, 1991).
- NSF-ECS-8803183, "Stochastic Convexity in Queueing Networks and Its Applications" ($209,979 for three years, starting August 15, 1988).

- NSF-ECS-8658157, "Optimization and Control of Discrete-Event Stochastic Systems" ($62,500 per year plus industry matching funds for five years, starting October 1, 1987).
- NSF-DMC-8503986, "Research Initiation: Flexible Routing in Manufacturing Systems" ($59,694 for two years, starting August 1, 1985).

- Altair Engineering Inc., PG-008663, "Studies on Innovation Intelligence Quotient (IIQ) – A Data Analytic Approach" ($171,460 for one year, starting June 1, 2016).
- International Business Machines, Faculty Award, "Research in Stochastic Networks" ($30,000 for one year, starting September 1, 2005).
- Electric Power Research Institute, RP-8030-22, "Monotone Control of Discrete-Event Systems" ($100,000 for two years, starting September 1, 1994; with Paul Glasserman).
- International Business Machines, Agreement No. 15160046, "Analysis, Design and Control of Manufacturing Systems" ($121,705, February 1, 1990 - January 31, 1991).
- International Business Machines, Agreement No. 15160045, "Analysis, Design and Control of Manufacturing Systems" ($146,618, February 1, 1989 - January 31, 1990).
- International Business Machines, Manufacturing Research Fellowship ($28,000 awarded to doctoral student Rajesh Sah, 1994).
- Solar Instrument, Inc., Manufacturing Research Fellowship ($30,000 awarded to doctoral student Yindong Lu, 1994).
- AT&T Bell Laboratories ($25,000, 1987).
- Digital Equipment Corporation ($37,500, 1987).
- General Electric Corporation ($7,500, 1987).
- GTE Laboratories ($40,000, 1987-91).
- International Business Machines Corporation ($12,500, 1987/88).
- Xerox Corporation ($20,000, 1987/88).

As Co-PI:

- AHRQ-1R18HS026418-01 "Simulation to Improve Infection Prevention and Patient Safety: The SIPPS Trial" ($255,977 for one year, starting Mar 1, 2019; with Armanda Hessels (PI) *et al*).
- AHRQ-R01-HS024915-01 "Nursing Intensity of Patient Care Needs and Rates of Healthcare-Associated Infections (NIC-HAI)" ($1,350,473 for three years, starting Sep 1, 2016; with Elaine Larson (PI) *et al*).
- DARPA-BAA-14-46 "A Bayesian Network Model of Financial, Social and News Streams Under Stress Conditions," ($450,000 for one year, starting Jan 15, 2015; with Tony Jebara (PI) and Kathleen McKeown).

- NSF Engineering Research Center in Telecommunications at Columbia University (1985-90).
- NSF Engineering Research Center in Systems at University of Maryland and Harvard University (1987-89).
- ONR-N00014-84-K-0465, Joint Services Electronics Program at Harvard University (1986-89).

Patents

- "Job Configuration for Semiconductor Manufacturing," D.P. Connors and David D. Yao; U.S. Patent 5,341,302, August 23, 1994.
- "System and Method for Inspection of Products Supplied with Warranties," David D. Yao, Jinfa Chen and Shaohui Zheng; U.S. Patent 5,608,658, March 4, 1997.
- "A Method for Providing Inventory Optimization," Markus Ettl, Grace Lin, Gerald Feigin and David D. Yao; U.S. Patent 5,946,662, August 31, 1999.
- "A Method for Estimating Future Replenishment Requirements and Inventory Levels in Physical Distribution Networks," Gerald Feigin, K. Katircioglu and David D. Yao; U.S. Patent 6,006,196, December 21, 1999.
- "Large Inventory-Service Optimization in Configuration-to-Order Systems," F. Cheng, Markus Ettl, Grace Lin, and David D. Yao; U.S. Patent 6,970,841, November 29, 2005.
- "Large Inventory-Service Optimization in Configuration-to-Order Systems," F. Cheng, Markus Ettl, Grace Lin, and David D. Yao; U.S. Patent 7,496,530, Feb 24, 2009 (additional claims to U.S. patent 6,970,841).
- "Managing Fresh-Product Inventory," D.P. Connors, Markus Ettl, David D. Yao and Zhengliang Xue; U.S. Patent 8,364,553, Jan 29, 2013.
- "Joint Pricing and Replenishment of Freshness Inventory," D.P. Connors, Markus Ettl, David D. Yao and Zhengliang Xue; U.S. Patent 8,843,404, Sep 23, 2014.
- "Tracking a Financial Benchmark with a Few Assets," Yao, D.D., Zhang, S. and Zhou, X.; provisional patent filed February 19, 2004.

Editorial Boards

- Associate Editor, *Mathematics of Operations Research* (2019 -)
- Associate Editor, *Operations Research* (2012 -)
- Associate Editor, *Stochastic Systems* (INFORMS/APS Journal) (2009 -)
- Area Editor, *Operations Research* (1995 - 2006);
- Department Editor, *Discrete Event Dynamic Systems, Theory and Applications* (1991 - 2010); Advisory Board (2011 -);

- Associate Editor, *IEEE Transactions on Automatic Control* (1997 - 2000);
- Associate Editor, *Management Science* (1990 - 97);
- Associate Editor, *Operations Research Letters* (1989 - 2011);
- Associate Editor, *Probability in the Engineering and Informational Sciences* (1989 - 2010);
- Associate Editor, *Queueing Systems, Theory and Applications* (1989 - 2010);
- Associate Editor, *IIE Transactions* (1993 - 97);
- Associate Editor, *Naval Research Logistics* (1989 - 94);
- Associate Editor, *ORSA Journal on Computing* (1992 - 95).

Professional and Honor Society Membership

Institute of Electrical and Electronics Engineers (Fellow)
Institute for Operations Research and Management Sciences (Fellow)
Society for Industrial and Applied Mathematics
Omega Rho (Honor Society for Operations Research and Management Science)
Alpha Pi Mu (Honor Society for Industrial Engineering)

Biographical Reference Listings

Who's Who in America (since 1994)
American Men and Women of Science (since 1989)
Who's Who in Science and Engineering (since 1989)
Who's Who in American Education (since 1997)

Postdoctoral Fellows Advised

Hong Chen (Ph.D., Stanford University, 1987), postdoctoral research in optimization and control in queueing networks, September 1987 - August 1988, at Harvard University.

Jixian Zhang (Ph.D., Georgia Tech., 1988), postdoctoral research in combinatorial and stochastic optimization, September 1988 - August 1989, at Harvard University.

Yongbo Xiao (Ph.D., Tsinghua, 2006), postdoctoral research on inventory control with transshipment, 2007, at Chinese University of Hong Kong.

Weifen Zhuang (Ph.D., Nanyang Technological University, 2009), postdoctoral research on Markov decision programming and related applications, 2009, at Chinese University of Hong Kong.

Babak Haji (Ph.D., Berkeley, 2015), postdoctoral research on healthcare operations – stochastic modeling and optimization, January - December, 2016, at Columbia University (joint supervision with Yuan Zhong).

Mingliu Chen (Ph.D., Duke, 2020), postdoctoral research on contract design, principal-agent problems – stochastic modeling and optimization, Sept 2020 - June 2023, at Columbia University (joint mentoring with Adam Elmachtoub).

PhD Students Advised

S.C. Kim (Ph.D., Columbia University, 1985) "Loading, Assignment and Allocation Problems in a Class of Manufacturing Systems".

Gerald Feigin (Ph.D., Harvard University, 1990) "Comparison Methods for Scheduling Control of Multiclass Queues".

Dinah Cheng (Ph.D., Columbia University, 1990) "Tandem Queues with General Blocking: Stochastic Comparisons and Structural Properties".

Kenneth Budka (Ph.D. Harvard University, 1991) "Sample Path Analysis of Flow Control Schemes in Telecommunication Networks".

Bing Zhao (Ph.D., Columbia University, 1993) "Probabilistic Analysis of Some Combinatorial Optimization Problems".

Sanjay Mithal (Ph.D. Columbia University, 1994) "Limit Theorems for Networks of Finite Buffer Queues in Heavy Traffic."

Shaohui Zheng (Ph.D. Columbia University, 1994) "Dynamic Approaches to Some Quality Control Problems."

Youyi Feng (Ph.D., Columbia University, 1994; co-supervised with G. Gallego) "Optimal Pricing for Perishable Assets."

Guojian Li (Ph.D. Columbia University, 1995) "Applications of Stochastic Processes to Asset Planning."

Jinfa Chen (Ph.D. Columbia University, 1997) "Substitution and Inspection Models in Production-Inventory Systems."

Li Zhang (Ph.D. Columbia University, 1997) "Reliability and Dynamic Scheduling of Stochastic Networks."

Yingdong Lu (Ph.D. Columbia University, 1998) "Stochastic Scheduling of Multi-Class Networks with Side Constraints."

Xiaoming Liu (Ph.D. HK University of Science and Technology, 2000; co-supervised with Liming Liu)

Xiaoqing Wang (Ph.D. Chinese University of Hong Kong, 2007; co-supervised with Shuzhong Zhang)

Liao Wang (Ph.D. Columbia University, 2012-17) "Production Planning with Risk Hedging."

Lisong Rong (Ph.D. Tsinghua University, China, 2013-18; co-supervised with Jian Chen)

Ting Zhu (Ph.D. Sichuan University, China, 2013-18; co-supervised with Li Luo)

Enrique Lelo de Larrea Andrade (Ph.D. Columbia University, 2015-21; co-supervised with Paul Glasserman)

Jinsheng Chen (Ph.D. Columbia University, 2015-22; co-supervised with Jing Dong)

Elioth Sanabria (Ph.D. Columbia University, 2015-22; co-supervised with Henry Lam)

Hanyang Zhao (Ph.D. Columbia University, 2022– ; co-supervised with Wenpin Tang)

Ruofei Ma (Ph.D. Columbia University, 2023–; co-supervised with Wenpin Tang)

Doctoral Committees (partial list, with influence on the work)

Jianqiang Hu (Ph.D., Harvard University, 1990) "Strong Consistency in Infinitesimal Perturbation Analysis".

Michael Fu (Ph.D., Harvard University, 1989) "Stochastic Optimization Using Perturbation Analysis".

C.S. Chang (Ph.D., Columbia University, 1989) "Comparison Theorems for Queueing Systems and Their Applications to ISDN".

Pirooz Vakili (Ph.D., Harvard University, 1988) "Three Topics on Perturbation Analysis of Discrete-Event Dynamic Systems".

Paul Glasserman (Ph.D., Harvard University, 1988) "Equivalence Methods in the Perturbation Analysis of Queueing Networks".

Wei-Bo Gong (Ph.D., Harvard University, 1987) "Smoothed Perturbation Analysis".

Teaching

- *Columbia University:*

  Graduate Courses — Stochastic Modeling-II, Introduction to OR – Stochastic Models, Discrete Event Stochastic Systems, Queueing Networks, Queueing Theory, Advanced Stochastic Models, Analysis of Automated Manufacturing Systems, OR Method in Finance, Introduction to Financial Engineering, Financial Engineering II, Production and Inventory Control, Probability and Statistics, Elementary Stochastic Processes, Production Management.

  Undergraduate Courses — Probability, Production and Inventory Control, Production Scheduling, Facility Layout and Location.

- *Harvard University:*

  Graduate Courses — Discrete Event Stochastic Systems, Mathematical Programming.

- *Yale University:*

  Graduate Course — Structural Properties in Discrete-Event Stochastic Systems.

  Undergraduate Course — Probability and Stochastic Models.

Other Professional Activities

- Member, National Academies Panel on Review of the Engineering Laboratory at NIST (2017).
- Member, Board on Mathematical Sciences and Analytics (BMSA), National Academies of Science, Engineering and Medicine (2016-19).
- Columbia Engineering (SEAS) Promotion and Tenure Committee (2021 –).
- Chair, Financial and Business Analytics Center, Data Science Institute, Columbia University (2012-16); Co-Chair (2016 –).
- Co-Director, Fintech, AI and Business Analytics (FABULYS) Initiative, Columbia Engineering (2019 –).
- Co-founder and Co-Director, Center for the Management of Systemic Risk, Columbia School of Engineering and Applied Science (2012 –).
- Co-founder and Member of the Executive Committee, Center for Applied Probability, Columbia University (1990 -).
- Strategic Planning Committee, Columbia Engineering School (1993-94, 20012-13).
- Provost's Engineering Dean Search Committee; Columbia University (1995/96).
- Provost's Salary Equity Committee; Columbia University (1995-96).
- Led a committee to establish the MS degree program in Financial Engineering, IEOR Dept, Columbia University (1997-2000).
- Member of a committee to establish the MS degree program in Management Science and Engineering, in partnership with Columbia Business School, Columbia University (20012-13).

- Member, International Advisory Board, National University of Singapore Institute for Operations Research and Analytics (2022 -).
- Member, External Review Committee, Department of Industrial and Systems Engineering, Texas A&M University (2021).
- Chair, External Review Committee, Faculty of Industrial Engineering and Management, Technion - Israel Institute of Technology (2015).
- Advisory board member, Department of Industrial Engineering, Tsinghua University (2010-19).
- Advisory board member, School of Business, National University of Singapore (2007-09).
- Founding Director, Center for Logistics and Supply Chain Optimization (formerly, Center for the Advancement of E-Commerce Technologies), Li&Fung Institute for Supply Chain Management, Chinese University of Hong Kong (1999 - 2010).

- Led a committee to establish an Executive MSc Program in Logistics and Supply Chain Management in Shenzhen in collaboration with Tsinghua University, Chinese University of Hong Kong (2005-06).
- Founding Director, MSc in E-Commerce Technologies Program, Chinese University of Hong Kong (2000 - 2006).
- Senior Fellow, Center for the Management of Operations and Logistics, University of Texas, Austin (1996 - 2000).

- Visiting Scientist/Consultant:

  IBM T.J. Watson Research Center (1990 - 2012);

  AT&T Bell Labs, ConAgra, Digital Equipment, GE, GTE, USWest, Xerox; 1986-2000.
- Member of the OR-Grand Challenges Task Force (2012-13) sponsored by NSF, with the charge to identify OR catalysts for *NAE Grand Challenges*.
- Chair, INFORMS Lanchester Prize Committee (2012; Member, 2011-12, 1992-93).
- Program Chair, INFORMS International Conference, Beijing, June 24-27, 2012.
- Chair, INFORMS Applied Probability Society Special Committee to establish the APS flagship journal, *Stochastic Systems*, in collaboration with the Institute for Mathematical Statistics (IMS), 2006/07.
- Chair, INFORMS John von Neumann Theory Prize Committee (2003). Member, INFORMS John von Neumann Theory Prize Committee (2001-03).
- Chairman Elect (1991/92), Chairman (1992/93), Past Chairman (1993/94), Applied Probability Society of INFORMS (formally ORSA Technical Section and TIMS College of Applied Probability).
- Council Member (1992 - 95) ORSA Technical Section of Telecommunications.
- Member, ORSA Lanchester Prize Committee (1992/93).
- Program Chair, NFORMS International Conference (June 24-27, 2012, Beijing).
- Program Chair and co-founder, Mostly OM annual research workshop, Tsinghua University (2010-2018; Beijing; 2019 Shenzhen).
- Program Chair, INFORMS Applied Probability Meeting (Beijing, June 2004).
- Program Chair, Second ORSA Telecommunications Conference (March 1992, Boca Raton, Florida).
- Referee for Journals:

  Advances in Applied Probability, Annals of Operations Research, Applied Stochastic Models and Data Analysis, Discrete Event Dynamic Systems - Theory and Applications, European Journal of Operational Research, Information Sciences, Information Systems and Operational

Research, IEEE Transactions on Automatic Control, IEEE Transactions on Communications, IEEE Transactions on Computer, IEEE Transactions on Robotics and Automation, IIE Transactions, International Journal of Production Research, Journal of Applied Probability, Journal of the Association of Computing Machinery, Journal of Distributed and Parallel Computing, Journal of the Operational Research Society, Journal of Optimization - Theory and Applications, Journal of Robotic Systems, Large Scale Systems, Management Science, Material Flow, Mathematics of Operations Research, Naval Research Logistics Quarterly, Operations Research, Operations Research Letters, Opsearch, Performance Evaluation, Queueing Systems: Theory and Applications, Royal Statistical Society (UK), Scandanavian Journal of Statistics, SIAM Journal of Applied Mathematics, Systems and Control Letters, Transportation Science.

- Reviewer and Panelist:

  National Research Council;

  National Science Foundation: Division of Electrical, Communications and Systems Engineering; Division of Networking and Communications; Division of Design, Manufacturing and Computer-Integrated Engineering; Division of Civil, Mechanical and Manufacturing Innovation; Program of Decision, Risk and Management Science; CAREER Award;

  Natural Sciences and Engineering Research Council of Canada;

  International Science Foundation;

  German-Israel Foundation;

  Research Grants Council of Hong Kong.

Publications

Books

- Yao, D.D. and Zheng, S., *Dynamic Control of Quality in Production-Inventory Systems: Coordination and Optimization,* Springer-Verlag, 2002.
- Chen, H. and Yao, D.D., *Fundamentals of Queueing Networks: Performance, Asymptotics and Optimization,* Springer-Verlag, Applications of Mathematics, **46**, 2001.
- Glasserman, P. and Yao, D.D., *Monotone Structure in Discrete-Event Systems,* Wiley Inter-Science, Series in Probability and Mathematical Statistics, 1994.

- Latouche, G., Ramaswami, V., Sethuraman, J., Sigman, K., Squillante, M. and Yao, D.D. (eds.), *Matrix-Analytic Methods in Stochastic Models,* Springer-Verlag, 2012.
- Shanthikumar, J.G., Yao, D.D. and Zijm, W.H.M. (eds.), *Stochastic Modeling and Optimization of Manufacturing Systems and Supply Chains,* Kluwer, International Series in Operations Research and Management Science, **63**, 2003.
- Yao, D.D., Zhang, H. and Zhou, X.Y. (eds.), *Stochastic Modeling and Optimization, with Applications in Queues, Finance, and Supply Chains,* Springer-Verlag, 2002.
- Song, J.S. and Yao, D.D. (eds.), *Supply Chain Structures: Coordination, Information and Optimization,* Kluwer, International Series in Operations Research and Management Science, **42**, 2001.
- Glasserman, P., Sigman, K. and Yao, D.D. (eds.), *Stochastic Networks: Stability and Rare Events,* Springer-Verlag, Lecture Notes in Statistics, **117**, 1996.
- Yao, D.D., *Stochastic Modeling and Analysis of Manufacturing Systems,* Springer-Verlag, New York, 1994.

Journal Papers *(Appeared and Accepted)*

1. Tang, W. and Yao, D.D., Polynomial Voting Rules. *Mathematics of Operations Research,* published online Feb 7, 2024.
2. Tang, W. and Yao, D.D., Trading under the Proof-of-Stake Protocol — A Continuous-time Control Approach. *Mathematical Finance,* **33** (2023) no. 4.
3. Zhao, H., Tang, W. and Yao, D.D., Policy Optimization for Continuous Reinforcement Learning. *NeurIPS* (2023).
4. Wang, L. and Yao, D.D., Production Planning with Risk Hedging under a CVaR Objective. *Operations Research,* **71** (2023), 1055-1072.
5. Li, X., Xu, S., Yao, D.D. and Zhang, H., Optimal Staffing for Ticket Queues. *Queueing Systems,* **102** (2022), 309-351.

6. Chen, H., Wang, T. and Yao, D.D., Financial Network and Systemic Risk – A Dynamic Model. *Production and Operations Management,* **30** (2021), 2441-2466.

7. Ye, H. and Yao, D.D., Diffusion Approximation for Fair Resource Control — Interchange of Limits under a Moment Condition. *Mathematics of Operations Research,* **41** (2021), 1161-1207.

8. Xie, J., Zhuang, W., Ang, M., Chou, M., Luo, L. and Yao, D.D., Analytics for Hospital Resource Planning — Two Case Studies. *Production and Operations Management,* **30** (2021),1863-1885.

9. Wang, L. and Yao, D.D., Risk Hedging for Production Planning. *Production and Operations Management,* **30** (2021),1825-1837.

10. Yang, J., Yao, D.D. and Ye, H., On the Optimality of Reflection Control. *Operations Research,* **68** (2020), 1668-1677.

11. Capponi, A., Sun, X. and Yao, D.D., A Dynamic Network Model of Interbank Lending — Systemic Risk and Liquidity Provisioning. *Mathematics of Operations Research*, **45** (2020), 1127-1152.

12. Cohen, B., Liu, J., Larson, E.L., Sanabria, E., Yao, D.D., and Zachariah, P., Novel Strategies for Predicting Healthcare-associated Infections at Admission: Implications for Nursing Care. *Nursing Research* (2020).

13. Ye, H. and Yao, D.D., Justifying Diffusion Approximations for Stochastic Processing Networks under a Moment Condition. *Annals of Applied Probability*, **28** (2018), 3652-3697.

14. Wang, L. and Yao, D.D., Production with Risk Hedging – Optimal Policy and Efficient Frontier. *Operations Research,* **65** (2017), 1095-1113.

15. Larson, E.L., B. Cohen, J. Liu, P. Zachariah, D.D. Yao, and J. Shen, Assessing Intensity of Nursing Care Needs Using Electronically Available Data, *Computers, Informatics, Nursing*, **35** (2017), 617-623.

16. Ye, H. and Yao, D.D., Diffusion Limit of Fair Resource Control — Stationarity and Interchange of Limits. *Mathematics of Operations Research,* **41** (2016), 1161-1207.

17. Chen, N., Liu, X. and Yao, D.D., An Optimization View of Financial Systemic Risk Modeling – Network Effect and Market Liquidity Effect. *Operations Research,* **64** (2016), 1089-1108.

18. Capponi, A., Chen, P.-C. and Yao, D.D., Liability Concentration and Losses in Financial Networks: Comparisons via Majorization *Operations Research,* **64** (2016), 1121-1134.

19. Xu, H., Yao, D.D. and Zheng, S., Optimal Policies for a Two-Product Inventory System under a Flexible Substitution Scheme. *Production and Operations Management,* **25** (2016), 1088-1105.

20. Yao, D.D., Zhou, S. and Zhuang, W., Joint Replenishment and Transshipment – Asymptotics and Bounds. *Production and Operations Management,* **25** (2016), 273-289.

21. Luo, L., D.D. Yao, X. Huang, Y. You, Y. Shi, J. Liu, R. Gong, Sequence-Dependent Anesthesia-Controlled Times: A Retrospective Study in an Ophthalmology Department of a Single-Site Hospital. *Anesthesia & Analgesia*, **119** (2014), 151-162.

22. Pang, G. and Yao, D.D., Heavy-Traffic Limits for a Many-Server Queueing Network with Switchover. *Advances in Applied Probability*, **45** (2013), 645-672.

23. Ye, H. and Yao, D.D., A Stochastic Network under Proportional Fair Resource Control - Diffusion Limit with Multiple Bottlenecks. *Operations Research,* **60** (2012) 716-738.

24. Cheng, F., Ettl, M., Lu, Y. and Yao, D.D., A Two-Stage Push-Pull Production Planning Model. *Production and Operations Management,* **21** (2012), 668-681.

25. Xu, H., Yao, D.D. and Zheng, S., Optimal Replenishment and Substitution of an Inventory System with Nonstattionary Batch Demand. *Production and Operations Management.* **20** (2011) 727-736.

26. Ye, H. and Yao, D.D., Utility-Maximizing Resource Control: Diffusion Limit and Asymptotic Optimality for a Two-Bottleneck Model. *Operations Research,* **58** (2010), 613-623.

27. Chen, H., Wu, O., and Yao, D.D., On the Benefit of Inventory-Based Dynamic Pricing Strategies. *Production and Operations Management,* **19** (2010), 249-260.

28. Wang, X.Q., Zhang, S.Z. and Yao, D.D., Separated Continuous Conic Programming: Strong Duality and an Approximation Algorithm. *SIAM Journal on Control and Optimization*, **48** (2009) 2118-2138.

29. Ye, H. and Yao, D.D., Heavy-Traffic Optimality of a Stochastic Network under Utility-Maximizing Resource Control. *Operations Research*, **56** (2008), 453-470.

30. Lin, G.Y., Lu, Y. and Yao, D.D., The Stochastic Knapsack Revisited: Switch-Over Policies and Dynamic Pricing. *Operations Research*. **56** (2008), 945-957.

31. Shanthikumar, J.G. and Yao, D.D., John A. Buzacott and His Pioneering Contributions to Manufacturing and Service Systems. *Production and Operations Management,* **16** (2007), 657-664.

32. Yao, D.D., Comments on: Dynamic Priority Allocation via Restless Bandit Marginal Productivity Indices. *TOP* (OR Journal of the Spanish Statistics and OR Society), **15** (2007), 220-223.

33. Yao, D.D., Zhang, S., and Zhou, X., Tracking a Financial Benchmark with a Few Assets. *Operations Research*, **54** (2006), 232-246.

34. Lu, Yingdong, J.S. Song and Yao, D.D., Backorder Minimization in Multiproduct Assemble-to-Order Systems. *IIE Transactions*, **37** (8) (2005), 763-774.

35. Yao, D.D., Zhang, S., and Zhou, X., Stochastic LQ Control via Primal-Dual Semidefinite Programming. *SIAM Review*, **46** (2004), 85-111 (an invited SIGEST paper).

36. Glasserman, P. and Yao, D.D. Optimal Coupling is Totally Positive and More. *Journal of Applied Probability*, **41A** (2004), 321-332.

37. Liu, L., Liu, X. and Yao, D.D., Analysis and Optimization of Multi-Stage Inventory-Queues. *Management Science*, **50** (2004), 365-380.

38. Lu, Y. and Yao, D.D., Optimal Control of a Fluid Network with Side Constraints. *IEEE Transactions on Automatic Control*, **48** (2003), 1865-1869.

39. Lu, Y., Song, J.S. and Yao, D.D., Order Fill Rate, Leadtime Variability, and Advance Demand Information in an Assemble-to-Order System. *Operations Research*, **51** (2003), 292-308.

40. Chen, H., Shen, X. and Yao, D.D., Brownian Approximations of Multiclass Open Queueing Networks. *Operations Research*, **50** (2002), 1032-1049.

41. Song, J.S. and Yao, D.D., Performance Analysis and Optimization of Assemble-to-Order Systems with Random Leadtimes. *Operations Research*, **50** (2002), 889-903.

42. Cheng, F., Ettl, M., Lin, G. and Yao, D.D., Inventory-Service Optimization in Configure-to-Order Systems. *Manufacturing and Service Operations Management,* **4** (2002), 114-132.

43. Yao, D.D., Zhang, S., and Zhou, X., A Primal-Dual Semidefinite Programming Approach to Linear Quadratic Control. *IEEE Transactions on Automatic Control,* **46** (2001), 1442-1447.

44. Yao, D.D., Zhang, S., and Zhou, X., Stochastic LQ Control via Semidefinite Programming. *SIAM Journal on Control and Optimization*, **40** (2001), 801-823. Awarded 2003 SIAM Outstanding Paper Prize.

45. Chen, J., Yao, D.D. and Zheng, S., Optimal Replenishment and Rework under Multiple Unrealible Supply Sources. *Operations Research*, **49** (2001), 430-443.

46. Ettl, M., Feigin, G., Lin, G., and Yao, D.D., A Supply Network Model with Base-Stock Control and Service Requirements. *Operations Research*, **48** (2000), 216-232.

47. Lin, G., Ettl, M., Buckley, S., Bagchi, S., Yao, D.D., Naccarato, B.L., Allan, R., Kim, K., and Koenig, L., Extended-Enterprise Supply-Chain Management at IBM Personal Systems Group and Other Divisions, *Interfaces*, **30** (2000), 7-25.

48. Yao, D.D. and Zheng, S. Sequential Inspection under Capacity Constraints, *Operations Research*, **47** (1999), 410-421.

49. Yao, D.D. and Zheng, S. Coordinated Quality Control in a Two-Stage System. *IEEE Transactions on Automatic Control*, **44** (1999), 1166-1179.

50. Squillante, M.S., Yao, D.D., and Zhang, L., Analysis of Job Arrival Patterns and Parallel Scheduling Performance. *Performance Evaluation*, **36-37** (1999), 137-163.

51. Chang, C.S., Yao, D.D., and Zajic, T. Large Deviations, Moderate Deviations, and Queues with Long-Range Dependent Input. *Advances in Applied Probability*, **31** (1999) 254-277.

52. Yao, D.D. and Zheng, S. Sequential Quality Control in Batch Manufacturing. *Annals of Operations Research*, **87** (1999), 3-30.

53. Gong, W. and Yao, D.D., An Appreciation of Professor Yu-Chi Ho, *Journal of Optimization, Theory and Applications,* Special Issue guest-edited by Gong and Yao, **100** (1999), 453-456.

54. Yao, D.D., Discussant Notes on: The Achievable Region Approach to the Optimal Control of Stochastic Systems, by M. Dacre, K. Glazebrook and J. Nino-Mora, *Journal of the Royal Statistics Society, B,* **61** (1999).

55. Yao, D.D. and Zheng, S. Markov Decision Programming for Process Control in Batch Manufacturing. *Probability in the Engineering and Informational Sciences*, **12** (1998), 351-372.

56. Chen, J., Yao, D.D. and Zheng, S. Quality Control for Products Supplied with Warranty. *Operations Research*, **46** (1998), 107-115.

57. Yao, D.D. and Zheng, S. Coordinated Production and Inspection in a Tandem System. *Queueing Systems, Theory and Applications*, **24** (1996), 59-82.

58. Connors, D. and Yao, D.D. Methods for Job Configuration in Semiconductor Manufacturing. *IEEE Transactions on Semiconductor Manufacturing*, **9** (1996), 401-411.

59. Connors, D., Feigin, G. and Yao, D.D. A Queueing Network Model for Semiconductor Manufacturing. *IEEE Transactions on Semiconductor Manufacturing*, **9** (1996), 412-427.

60. Chang, C.S., Nelson, R. and Yao, D.D. Optimal Scheduling of Distributed Parallel Processors: Structural Properties and Optimal Policies, *Mathematical and Computer Modeling* (Special Issue: Advances in Discrete-Event Systems), **23** (1996), 93-114.

61. Glasserman, P. and Yao, D.D. Structured Buffer Allocation Problems. *Discrete Event Dynamic Systems: Theory and Applications*, **6** (1996), 9-42.

62. Yao, D.D. S-Modular Games, with Queueing Applications. *Queueing Systems: Theory and Applications,* **21** (1995), 449-475.

63. Glasserman, P. and Yao, D.D. Stochastic Difference Equation with Stationary Coefficients. *Journal of Applied Probability*, **32** (1995), 851-866.

64. Glasserman, P. and Yao, D.D. Subadditivity and Stability of a Class of Discrete-Event Systems. *IEEE Transactions on Automatic Control,* **40** (1995), 1514-1527.

65. Sigman, K. and Yao, D.D. Finite Moments of Inventory Processes. *Annals of Applied Probability*, **4** (1994), 765-778.

66. Chen, H., Yang, P. and Yao, D.D. Control and Scheduling in a Two-Station Network: Optimal Policies and Heuristics. *Queueing Systems: Theory and Applications*, **18** (1994), 301-332.

67. Chang, C.S., Nelson, R. and Yao, D.D. Optimal Task Scheduling on Distributed Parallel Processors. *Performance Evaluation*, **20** (1994), 207-221.

68. Glasserman, P. and Yao, D.D. Monotone Optimal Control of Permutable GSMPs. *Mathematics of Operations Research*, **19** (1994), 449-476.

69. Connors, D., Feigin, G. and Yao, D.D. Scheduling Semiconductor Lines Using a Fluid Network Model. *IEEE Transactions on Robotics and Automation*, **10** (1994), 88-98.

70. Chen, H. and Yao, D.D. Dynamic Scheduling Control of a Multi-Class Fluid Network. *Operations Research*, **41** (1993), 1104-1115.

71. Chen, H., Yang, P., Yao, D.D. and Chao, X. Optimal Control of a Simple Assembly System. *Operations Research Letters*, **14** (1993), 199-205.

72. Gallego, G., Yao, D.D. and Moon, I. Optimal Control of a Production Process with Trial Runs. *Management Science*, **39** (1993), 1499-1505.

73. Chang, C.S. and Yao, D.D. Rearrangement, Majorization, and Stochastic Scheduling. *Mathematics of Operations Research*, **18** (1993), 658-684.

74. Cheng, D.W. and Yao, D.D. Tandem Queues with General Blocking: A Unified Model and Comparison Results. *Discrete Event Dynamic Systems: Theory and Applications,* **2** (1993), 207-234.

75. Yao, D.D. *Le Style Est L'Homme,* and beyond. *Discrete Event Dynamic Systems, Theory and Applications,* **3** (1993), 323.

76. Yao, D.D. On Wolff's PASTA Martingale. *Operations Research,* **40** (1992), 352-355.

77. Shanthikumar, J.G. and Yao, D.D. Spatiotemporal Convexity of Stochastic Processes and Applications. *Probability in the Engineering and Informational Sciences,* **6** (1992), 1-16.

78. Glasserman, P. and Yao, D.D. Monotonicity in Generalized Semi-Markov Processes. *Mathematics of Operations Research*, **17** (1992), 1-21.

79. Glasserman, P. and Yao, D.D. Generalized Semi-Markov Processes: Antimatroid Structure and Second Order Properties. *Mathematics of Operations Research*, **17** (1992), 444-469.

80. Glasserman, P. and Yao, D.D. Some Guidelines and Guarantees of Common Random Numbers. *Management Science*, **38** (1992), 884-908.

81. Shanthikumar, J.G. and Yao, D.D. Multiclass Queueing Systems: Polymatroid Structure and Optimal Scheduling Control. *Operations Research*, **40** (1992), 293-299.

82. Chen, H. and Yao, D.D. A Fluid Model for Systems with Random Disruptions. *Operations Research*, **40** (1992), 239-247.

83. Glasserman, P. and Yao, D.D. Algebraic Structure of Some Stochastic Discrete Event Systems, with Applications. *Discrete Event Dynamic Systems: Theory and Applications*, **1** (1991), 7-35.

84. Shanthikumar, J.G. and Yao, D.D. Bivariate Characterization of Some Stochastic Order Relations. *Advances in Applied Probability,* **23** (1991), 642-659.

85. Shanthikumar, J.G. and Yao, D.D. Strong Stochastic Convexity: Closure Properties and Applications. *Journal of Applied Probability*, **28** (1991), 131-145.

86. Ross, K.W. and Yao, D.D. Optimal Load Balancing and Scheduling in a Distributed Computer System. *Journal of the Association for Computing Machinery,* **38** (1991), 676-690.

87. Yao, D.D. and Pei, F.F. Flexible Parts Routing in Manufacturing Systems. *IIE Transactions*, **22** (1990), 48-55.

88. Chen, H. and Yao, D.D. Optimal Intensity Control of a Queueing System with State-Dependent Capacity Limits. *IEEE Transactions on Automatic Control,* **35** (1990), 459-464.

89. Chen, H. and Yao, D.D. Derivatives of the Expected Delay in the GI/G/1 Queue. *Journal of Applied Probability,* **28** (1990), 899-907.

90. Ross, K.W. and Yao, D.D. Monotonicity Properties for the Stochastic Knapsack. *IEEE Transactions on Information Theory*, **36** (1990), 1173-79.

91. Shanthikumar, J.G. and Yao, D.D. Optimal Scheduling Control of a Flexible Machine. *IEEE Transactions on Robotics and Automation,* **6** (1990), 706-712.

92. Yao, D.D. and Klein, M. Lot Sizes under Continuous Demand: The Backorder Case. *Naval Research Logistics,* **36** (1989), 615-624.

93. Shanthikumar, J. G. and Yao, D.D. Optimal Buffer Allocation in a Multicell System. *Journal of Flexible Manufacturing Systems,* **1** (1989), 347-356.

94. Shanthikumar, J.G. and Yao, D.D. Second Order Stochastic Properties in Queueing Systems. *Proceedings of IEEE,* **77**(1), (1989), 162-170.

95. Yao, D.D. and Schechner, Z. Decentralized Control of Service Rates in a Closed Jackson Network. *IEEE Transactions on Automatic Control,* **34** (1989), 236-240.

96. Servi, L.D. and Yao, D.D. Bounds for Queueing Systems with Limited Service Schedule. *Performance Evaluation,* **9** (1989). 247-261.

97. Shanthikumar, J.G. and Yao, D.D. Stochastic Monotonicity in General Queueing Networks. *Journal of Applied Probability,* **26** (1989), 413-417.

98. Ross, K.W. and Yao, D.D. Optimal Dynamic Scheduling in Jackson Networks. *IEEE Transactions on Automatic Control,* **34** (1989), 47-53.

99. Yao, D.D. Optimal Run Quantities for an Assembly System with Random Yields. *IIE Transactions,* **20** (1988), 399-403.

100. Yao, D.D. and Shanthikumar, J.G. Allocating a Joint Setup in a Multi-Cell System. *Annals of Operations Research,* **15** (1988), 155-167.

101. Shanthikumar, J.G. and Yao, D.D. Throughput Bounds for Closed Queueing Networks with Queue-Dependent Service Rates. *Performance Evaluation,* **9** (1988), 69-78.

102. Shanthikumar, J.G. and Yao, D.D. On Server Allocation in Multiple-Center Manufacturing Systems. *Operations Research*, **36** (1988) 333-342.

103. Shanthikumar, J.G. and Yao, D.D. Second-Order Properties of the Throughput in a Closed Queueing Network. *Mathematics of Operations Research,* **13** (1988) 524-534.

104. Yao, D.D. The Arrangement of Servers in an Ordered-Entry System. *Operations Research*, **35** (1987), 759-763.

105. Yao, D.D. and Kim, S.C. Reducing the Congestion in a Class of Job Shops. *Management Science*, **34** (1987), 1165-1172.

106. Shanthikumar J.G. and Yao, D.D. Comparing Ordered-Entry Queues with Heterogeneous Servers. *Queueing Systems, Theory and Applications,* **2** (1987) 235-244.

107. Shanthikumar, J.G. and Yao, D.D. Optimal Server Allocation in a System of Multi-Server Stations. *Management Science*, **34** (1987), 1173-1180.

108. Yao, D.D. and Buzacott, J.A. Modeling a Class of Flexible Manufacturing Systems with Reversible Routing. *Operations Research*, **35** (1987), 87-93.

109. Shanthikumar, J.G. and Yao, D.D. Stochastic Monotonicity of the Queue Lengths in Closed Queueing Networks. *Operations Research*, **35** (1987), 583-588 .

110. Yao, D.D. Majorization and Arrangement Orderings in Open Networks of Queues. *Annals of Operations Research*, **9** (1987), 531-543.

111. Yao, D.D. and Shanthikumar, J.G. The Optimal Input Rates to a System of Manufacturing Cells. *INFOR, Information Systems and Operational Research,* **25** (1987), 57-65.

112. Yao, D.D. and Kim, S.C. Some Order Relations in Closed Networks of Queues with Multi-Server Stations. *Naval Research Logistics* , **34** (1987), 53-66.

113. Yao, D.D. Some Results for Bulk-Arrival Queues. *Selecta Statistica Canadiana*, **7** (1986), 109-128.

114. Yao, D.D. Convexity Properties of the Overflow in an Ordered-Entry System with Heterogeneous Servers. *Operations Research Letters*, **5** (1986) 145-148.

115. Shanthikumar, J.G. and Yao, D.D. The Preservation of Likelihood Ratio Ordering under Convolution. *Stochastic Processes and Their Applications*, **23** (1986), 259-267.

116. Buzacott, J.A. and Yao, D.D. Flexible Manufacturing Systems: A Review of Analytical Models. *Management Science*, **32** (1986), 890-905.

117. Buzacott, J.A. and Yao, D.D. On Queueing Network Models of Flexible Manufacturing Systems. *Queueing Systems, Theory and Applications*, **1** (1986), 5-28.

118. Shanthikumar, J.G. and Yao, D.D. The Effect of Increasing Service Rates in Closed Queueing Networks. *Journal of Applied Probability*, **23** (1986), 474-483.

119. Yao, D.D. An Optimal Storage Model for a Flexible Manufacturing System. *Studies in Management Science and Systems*, **12** (1986), 113-126.

120. Yao, D.D. and Buzacott, J.A. The Exponentialization Approach to Flexible Manufacturing Systems Models with General Processing Times. *European Journal of Operational Research*, **24** (1986), 410-416.

121. Yao, D.D. and Buzacott, J.A. Models of Flexible Manufacturing Systems with Limited Local Buffers. *International Journal of Production Research*, **24** (1986), 107-118.

122. Yao, D.D. Refining the Diffusion Approximation for the M/G/m Queue. *Operations Research*, **33** (1985), 1266-1277.

123. Yao, D.D. and Buzacott, J.A. Modeling the Performance of Flexible Manufacturing Systems. *International Journal of Production Research*, **23** (1985), 945-960.

124. Yao, D.D. Material and Information Flows in Flexible Manufacturing Systems. *Material Flow*, **2** (1985), 143-149.

125. Yao, D.D. and Buzacott, J.A. Modeling a Class of State-Dependent Routing in Flexible Manufacturing Systems. *Annals of Operations Research*, **3** (1985), 153-167.

126. Yao, D.D. First Passage Time Moments of Markov Processes. *Journal of Applied Probability*, **22** (1985), 939-945.

127. Yao, D.D. Some Results for the Queues M(X)/M/c and GI/(X)/G/c. *Operations Research Letters*, **4** (1985), 79-84.

128. Yao, D.D. Some Properties of the Throughput Function of Closed Networks of Queues. *Operations Research Letters*, **3** (1985), 313-318.

129. Yao, D.D. and Buzacott, J.A. Queueing Models for a Flexible Machining Station, I: Diffusion Approximations. *European Journal of Operational Research*, **19** (1985), 233-240.

130. Yao, D.D. and Buzacott, J.A. Queueing Models for a Flexible Machining Station, II: The Method of Coxian Phases. *European Journal of Operational Research*, **19** (1985), 241-252.

131. Yao, D.D., Chaudhry, M.L. and Templeton, J.G.C. Analyzing the Steady-State Queue GI(X)/G/1. *Journal of the Operational Research Society*, **35** (1984), 1027-1030.

132. Yao, D.D., Chaudhry, M.L. and Templeton, J.G.C. A Note on Some Relations in the Queue GI(X)/M/c. *Operations Research Letters*, **3** (1984), 53-56.

133. Yao, D.D., Chaudhry, M.L. and Templeton, J.G.C. On Bounds for Bulk Arrival Queues. *European Journal of Operational Research*, **15** (1984), 237-243.

134. Turksen, I.B. and Yao, D.D. Representation of Connectives in Fuzzy Reasoning: The View through Normal Forms. *IEEE Transactions on Systems, Man and Cybernetics*, **SMC-14** (1984), 146-151.

Journal Editorials

135. Yao, D.D. Area Editor's Statement — Stochastic Models. *Operations Research*, **48** (2000).

136. Yao, D.D. Area Editor's Statement — Stochastic Models. *Operations Research*, **44** (1996), 248-249.

137. Doshi, B. and Yao, D.D. Editorial Introduction, Special Issue on Telecommunications. *Queueing Systems: Theory and Applications,* **20** (1995), 1-6.

Book Chapters

138. Wang, L. and Yao, D.D., Data and Risk Analytics for Production Planning. In: *Emerging Technology & Advances in Supply Chain Finance & Risk Management,* P. Kouvelis, L. Dong and D. Turcic (eds), NOW Publishers Inc., Boston, 2019; pp. 201-218.

139. Wang, L. and Yao, D.D., Integrated Production Planning and Risk Hedging. In: *Integrated Risk Management in Supply Chains,* P. Kouvelis, L. Dong and D. Turcic (eds), NOW Publishers Inc., Boston, 2017; pp. 105-127.

140. Yao, D.D., The Being and Becoming of Perturbation Analysis. In: *Stochastic Simulation and Optimization for Discrete Event Systems,* C-H Chen, Q-S Jia and L.H. Lee (eds), World Scientific, 2013.

141. Yao, D.D. and Zhou, X.Y., Financial engineering. In: *McGraw-Hill Yearbook of Science & Technology,* pp. 125-128, 2008.

142. Cheng, F., Ettl, M., Lin, G.Y., Schwarz, M. and Yao, D.D., Designing Flexible Supply Chain Contracts via Options. In: *Planning in the Extended Enterprise: A State of the Art Handbook,* K.G. Kempf, P. Keskinocak, R. Uzsoy et al (eds.), Springer, 2008.

143. Yao, D.D., Zhang, Q. and Zhou, X.Y., A Regime-Switching Model for European Options. In: *Stochastic Processes, Optimization, and Control Theory Applications in Financial Engineering, Queueing Networks, and Manufacturing Systems*, H. Yan, G. Yin and Q. Zhang (eds.), Springer, 2006; pp. 281-300.

144. Cheng, F., Ettl, M., Lin, G.Y., and Yao, D.D., Inventory-Service Optimization Models in High Technology Value Chains. In: *Supply Chain Management on Demand*, C. An and H. Fromm (eds.), Springer, 2005; Chapter 3, 37-63.

145. Feigin, G., Katircioglu, K., and Yao, D.D., Distribution Resource Planning: A Critique and Enhancement. In: *Analysis and Modeling of Manufacturing Systems,* S. Gershwin et al (eds.), Kluwer, 2003, Chapter 2, 37-68.

146. Yao, D.D. and Zheng, S., Inventory with Substitution: Single- and Multi-Period Models. In: *Stochastic Modeling and Optimization of Manufacturing Systems and Supply Chains,* Shanthikumar, J.G., Yao, D.D. and Zijm, W.H.M. (eds.), Kluwer, 2003; Chapter 8, 177-202.

147. Yao, D.D., Dynamic Scheduling via Polymatroid Optimization. In: *Performance Evaluation of Complex Systems: Techniques and Tools,* M.C. Calzarossa and S. Tucci (eds.), Springer-Verlag, 2002, 89-113.

148. Chang, C.S., Yao, D.D., and Zajic, T., Large Deviations for Processes with Long-Range Dependence, with Queueing Applications. In: *Stochastic Modeling and Optimization, with Applications in Queues, Finance, and Supply Chains,* D.D. Yao, H. Zhang and X.Y. Zhou (eds.), Springer-Verlag, 2002.

149. Yao, D.D., Zhang, S., and Zhou, X., Linear Quadratic Control Revisited: A View through Semidefinite Programming. In: *Modeling, Control and Optimization of Complex Systems,* Weibo Gong and Leyuan Shi (eds.), Kluwer, 2002, Chapter 9, 195-235.

150. Song, J.S. and Yao, D.D., Introduction and Overview. In: *Supply Chain Structures: Coordination, Information and Optimization,* Song, J.S. and Yao, D.D. (eds.), Kluwer, 2001, Chapter 1, 1-6.

151. Yao, D.D., Production-Inventory Systems. In: *Industrial Engineering Handbook,* G. Salvendy (ed.), Wiley, 2001, Chapter 61, 1669-1694.

152. Brown, A.O., Ettl, M., Lin, G., Petrakian, R. and Yao, D.D., Inventory Allocation at a Semiconductor Company: Modeling and Optimization. In: *Supply Chain Structures: Coordination, Information and Optimization,* Song, J.S. and Yao, D.D. (eds.), Kluwer, 2001 (Chapter 9).

153. Yao, D.D. and Zheng, S., Optimality of Sequential Quality Control via Stochastic Orders. In: *Applied Probability and Stochastic Processes* (a volume honoring Julian Keilson), J.G. Shanthikumar and U. Sumita (eds.), Kluwer, 1999, Chapter 10, 129-147.

154. Squillante, M.S., Yao, D.D., and Zhang, L., Internet Traffic: Periodicity, Tail Behavior, and Performance Implications. In: *Systems Performance Evaluation: Methodologies and Applications,* E. Gelenbe (ed.), CRC Press, Boca Raton, 1999, Chapter 2, 23-47.

155. Yao, D.D. and Zhang, L., Stochastic Scheduling and Polymatroid Optimization, *Lecture Notes in Applied Mathematics,* **33**, George Yin and Qing Zhang (eds.), Springer-Verlag, New York, 1997, 333-364.

156. Chen, H. and Yao, D.D., Stable Priority Disciplines for Multiclass Networks. *Stochastic Networks: Stability and Rare Events,* Glasserman, P., Sigman, K., and Yao, D.D. (eds.) Springer-Verlag, New York, 1996, Chapter 2,

157. Chang, C.S., Yao, D.D., and Zajic, T., Moderate Deviations for Queues with Long-Range Dependent Input. *Stochastic Networks: Stability and Rare Events,* Glasserman, P., Sigman, K., and Yao, D.D. (eds.) Springer-Verlag, New York, 1996, Chapter 14,

158. Yao, D.D., Stochastic Convexity and Submodularity, with Production Applications. *Probability Models and Statistics, A J. Medhi Festschrit,* A. Borthakur (ed.), Wiley Eastern (New Age International), New Delhi, 1996, 1-28.

159. Melamed, B. and Yao, D.D., The ASTA Property. *Advances in Queueing, Theory, Methods and Open Problems*, J.H. Dshalalow (ed.), CRC Press, Boca Raton, 1995, Chapter 7, 195-224.

160. Buzacott, J.A., Shanthikumar, J.G., and Yao, D.D., Jackson Network Models of Manufacturing Systems. *Stochastic Modeling and Analysis of Manufacturing Systems,* D.D. Yao (ed.), Springer-Verlag, New York, 1994, Chapter 1, 1-46.

161. Glasserman, P., and Yao, D.D., A GSMP Framework for the Analysis of Production Lines. *Stochastic Modeling and Analysis of Manufacturing Systems,* D.D. Yao (ed.), Springer-Verlag, New York, 1994, Chapter 4, 131-186.

162. Chang, C.S., Shanthikumar, J.G., and Yao, D.D., Stochastic Convexity and Stochastic Majorization. *Stochastic Modeling and Analysis of Manufacturing Systems,* D.D. Yao (ed.), Springer-Verlag, 1994, Chapter 5, 187-230.

163. Shanthikumar, J.G., and Yao, D.D., Stochastic Comparisons in Closed Jackson Networks. In *Stochastic Orders,* M. Shaked and J.G. Shanthikumar, Academic Press, New York, 1994, Chapter 14, 433-460.

164. Yao, D.D., Conservation Laws and Polymatroid Structure, *MaGraw-Hill Yearbook of Science and Technology,* MaGraw-Hill, 1992, New York, 370-372.

165. Shanthikumar, J.G., and Yao, D.D., Second-Order Stochastic Properties in Queueing Systems. *Discrete Event Dynamic Systems,* Y.C. Ho (ed.), IEEE Press, New York, 1990.

166. Shanthikumar, J.G. and Yao, D.D., Monotonicity Properties in Cyclic Queueing Networks with Finite Buffers. *Queueing Networks with Blocking*, H. Perros and T. Altiok (eds.), Elsevier Science, Amsterdam, 1989, 325-344.

167. Yao, D.D., Modeling Flexible Manufacturing Systems Using Product-Form Queueing Networks. *Progress in Materials Handling Logistics,* Vol. 1, J.A. White and I.W. Pence (eds.), Springer-Verlag, New York, 1989, 223-236.

168. Dallery, Y. and Yao, D.D., Modeling a System of Flexible Manufacturing Cells. *Modeling and Design of Flexible Manufacturing Systems*, A. Kusiak (ed.), Elsevier, Amsterdam, 1986, 289-300.

169. Yao, D.D. and Shanthikumar, J.G., Some Resource Allocation Problems in Multi-Cell Systems. *Flexible Manufacturing Systems, Operations Research Models and Applications,* K.E. Stecke and R. Suri (eds.), Elsevier, Amsterdam, 1986, 245-256.

Refereed Proceedings

170. Z. Xue, Ettl, M. and Yao, D.D., Managing Freshness Inventory. *Proceedings of INFORMS/MSOM Conference,* University of Michigan, Ann Arbor, MI, June 26-28, 2011.

171. Ye, H. and Yao, D.D., Diffusion Limit of a Two-Class Network — Stationary Distributions and Interchange of Limits. *Proceedings of the Eighth Workshop on Mathematical Performance Modeling and Analysis.* June, 2010, Columbia University, New York.

172. Xu, H., Yao, D.D. and Zheng, S., Inventory with Flexible Substitution. *Proceedings of INFORMS/MSOM Conference,* University of Maryland, June, 2008.

173. Yao, D.D. and Xiao, Y., Asymptotically Optimal Decisions for Replenishment and Transshipment. *Proceedings of INFORMS/MSOM Conference,* Beijing, June, 2007.

174. Yao, D.D. and Ye, H., Asymptotic Optimality of Threshold Controls in a Stochastic Network based on a Fixed-Point Approximation. *Proceedings of the Eighth Workshop on Mathematical Performance Modeling and Analysis.* June 27, 2006, St. Malo, France.

175. Ye, H. and Yao, D.D., Asymptotic Optimality of the Max-Min Fair Allocation. *Proceedings of the 8th International Workshop on Discrete Event Systems.* Ann Arbor, Michigan, July 10-12, 2006. pp. 352-357.

176. Kumar, R., Yao, D.D., Bagchi, A., Ross, K. and Rubenstein, D., Fluid Modeling of Pollution Proliferation in P2P Networks. *ACM SIGMETRICS Performance Evaluation Review*, **34**(1) (June 2006), 335-346.

177. Adler, M., Kumar, R., Ross, K., Rubenstein, D., Turner, D., and Yao, D.D., Optimal Peer Selection for P2P Downloading and Streaming, *IEEE Infocom 2005.*

178. Adler, M., Kumar, R., Ross, K., Rubenstein, D., Turner, D., and Yao, D.D., Optimal Peer Selection in a Free Market Peer-Resource Economy. *Second Workshop on Economics of Peer-to-Peer Systems,* Cambridge, Massachusetts, June 2004.

179. Adler, M., Kumar, R., Ross, K., Rubenstein, D., Turner, D., and Yao, D.D., Two Optimal Peer Selection Problems, *ACM SIGMETRICS Performance Evaluation Review*, **32**(2) (September 2004), 28-30.

180. Li, Xuan, and Yao, D.D., Control and Pricing in Stochastic Networks with Concurrent Resource Occupancy, *ACM SIGMETRICS Performance Evaluation Review*, **32**(2) (September 2004), 50-52.

181. Squillante, M.S., Xia, C.H., Yao, D.D., and Zhang, L., Threshold-Based Priority Policies for Parallel-Server Systems with Affinity Scheduling. *Proceedings of the 2001 American Control Conference*. Arlington, VA, 2001, 2992-2999.

182. Chen, J., Yao, D.D. and Zheng, S., Optimal Control of a Multi-Product Inventory System with Substitution. *Proceedings of IEEE 38th Conference on Decision and Control*. Phoenix, Arizona, 1999, 468-473.

183. Yao, D.D., Zhang, S., and Zhou, X., Linear Quadratic Control via Semi-Definite Programming. *Proceedings of IEEE 38th Conference on Decision and Control*. Phoenix, Arizona, 1999, 1027-1033.

184. Feigin, G., Katircioglu, K., and Yao, D.D., Capacity Allocation in Semiconductor Fabrication. *Proceedings of IEEE 38th Conference on Decision and Control*. Phoenix, Arizona, 1999, 1374-1379.

185. Squillante, M.S., Yao, D.D., and Zhang, L., Web Traffic Modeling and Web Server Performance Analysis. *Proceedings of IEEE 38th Conference on Decision and Control*. Phoenix, Arizona, 1999, 4432-4437.

186. Squillante, M.S., Yao, D.D., and Zhang, L., Analysis of Job Arrival Patterns and Parallel Scheduling Performance. *Performance '99*, Istanbul, Turkey, 1999.

187. Yao, D.D. and Zheng, S., Sequential Inspection in a Two-Stage System. *Proceedings of IEEE 36th Conference on Decision and Control*. San Diego, CA., 1997, 4068-74.

188. Yao, D.D. and Zhang, L. Dynamic Scheduling of a Class of Stochastic Systems: Optimality and the Polymatroid Structure, *Proceedings of IEEE 36th Conference on Decision and Control*. San Diego, CA., 1997, 1191-96.

189. Yao, D.D. and Zheng, S., Sequential Quality Control of a Machining Process. *Proceedings of IEEE 34th Conference on Decision and Control*. New Orleans, LA, 1995, 3128-33.

190. Yao, D.D. and Li, G. *S*-Modular Games and Flow Control. *Proceedings of 28th Princeton Conference on Information Sciences and Systems.* Princeton University, Princeton, NJ, 1994, 1-6.

191. Glasserman, P. and Yao, D.D. Subadditivity and Stability of a Class of Discrete-Event Systems. *Proceedings of IEEE 32nd Conference on Decision and Control*. San Antonio, Texas, 1993, 3172-77.

192. Sigman, K. and Yao, D.D. Finite Moments of Inventory Processes. *Proceedings of 31st Annual Allerton Conference on Communication, Control and Computing*, 1993, 423-432.

193. Glasserman, P. and Yao, D.D. Monotone Rate Control of Permutable GSMPs. *Proceedings of IEEE 31st Conference on Decision and Control.* Tucson, Arizona, 1992, 777-782.

194. Chen, H. and Yao, D.D. Studies on Systems with Random Disruptions via Fluid Models. *Proceedings of American Control Conference.* Boston, MA, 1991, 449-454.

195. Yang, P., Chen, H. and Yao, D.D. Optimal Control and Scheduling in a Multiclass Queueing Network: Results and Conjectures. *Proceedings of IEEE 29th Conference on Decision and Control.* Honolulu, Hawaii, 1990, 582-586.

196. Budka, K.C. and Yao, D.D. Monotonicity and Convexity Properties of Rate Control Throttles. *Proceedings of IEEE 29th Conference on Decision and Control.* Honolulu, Hawaii, 1990, 883-884.

197. Glasserman, P. and Yao, D.D. Applications of Some Structural Properties in Stochastic Discrete Event Systems. *Proceedings of IEEE 29th Conference on Decision and Control.* Honolulu, Hawaii, 1990, 1317-22.

198. Yao, D.D. and Cheng, D.W. New Wave Manufacturing Systems Modeling. *Proceedings of NSF Grantees Conference on Design and Manufacturing,* Tempe, Arizona, January 1990.

199. Lin, F. and Yao, D.D. Generalized Semi-Markov Process: A View Through Supervisory Control. *Proceedings of IEEE 28th Conference on Decision and Control.* Tampa, Florida, 1989, 1075-76.

200. Chen, H. and Yao, D.D. Optimal Scheduling of Multi-Class Queueing Networks: The Approach via Fluid Networks. *Proceedings of 28th IEEE Conference on Decision and Control.* Tampa, Florida, 1989, 1105-06.

201. Servi, L.D. and Yao, D.D. Stochastic Bounds for Vacation Models with Limited Service. *Proceedings of the International Seminar of Performance of Distributed and Parallel Systems.* Kyoto, Japan, 1988.

202. Shanthikumar, J.G. and Yao, D.D. Stochastic Convexity and Its Applications in Parametric Optimization of Queueing Systems. *Proceedings of IEEE 27th Conference on Decision and Control.* Austin, TX, 1988, 657-662.

203. Yao, D.D. and Schechner, Z. Decentralized Control of Service Rates in a Closed Jackson Network. *Proceedings of IEEE 26th Conference on Decision and Control.* Los Angeles, 1987, 1487-1490.

204. Shanthikumar, J.G. and Yao, D.D. General Queueing Networks: Representation and Stochastic Monotonicity. *Proceedings of 26th IEEE Conference on Decision and Control.* Los Angeles, 1987, 1084-1087.

205. Yao, D.D. and Shanthikumar, J.G. A Closed Queueing Network of Counting Processes. *Proceedings of 26th IEEE Conference on Decision and Control.* Los Angeles, 1987, 675-676.

206. Yao, D.D. and Shanthikumar, J.G. Optimal Periodic Run Quantities for a Set of Cells under Joint Setup. *Proceedings of 1987 IEEE International Conference on Robotics and Automation.* IEEE Computer Society, Washington, D.C. 1987.

207. Yao, D.D. An FMS Network Model with State-Dependent Routing. *Proceedings of 1st ORSA/TIMS Conference on Flexible Manufacturing Systems*, Ann Arbor, Michigan, 1984.

208. Yao, D.D. and Buzacott, J.A. Closed Queueing Networks with Blocking — A Model for Flexible Manufacturing Systems. Abstract in *Advances in Applied Probability*, **9** (1984).

209. Yao, D.D. and Buzacott, J.A. Closed Queueing Network Models for Flexible Manufacturing Systems. *Proceedings of 7th International Conference on Production Research*, Windsor, Canada, 1983.

210. Yao, D.D. and Buzacott, J.A. Modeling a Multi-Machine Work Station in Flexible Manufacturing Systems. *Proceedings of 20th Annual Allerton Conference on Communication, Control and Computing*, H.V. Poor and W.K. Jenkins (eds.), 444-451, 1982.

211. Yao, D.D. and Leon-Garcia, A. On the Behavior of the Data Queue in a Voice/Data Integrated System. *Proceedings of 20th Annual Allerton Conference on Communication, Control and Computing*, H.V. Poor and W.K. Jenkins (eds.), 977-984, 1982.

212. Yao, D.D. and Turksen, I.B. On Multi-Valued Controller in Production Systems. *Proceedings of 7th International Conference on Production Research*, Windsor, Canada, 1983.

213. Turksen, I.B. and Yao, D.D. Bounds for Fuzzy Inference. *Cybernetics and Systems Research*, R. Trappl (ed.), 729-734, North-Holland, 1982.

Book Review

214. Yao, D.D. Review of *A Celebration of Applied Probability* (J. Gani, ed., Applied Probability Trust, 1988), *Interface*, **21** (1991) 143-145.

215. Yao, D.D. Review of *Stochastic Models of Manufacturing Systems* (J.A. Buzacott and J.G. Shanthikumar, Prentice Hall, 1993), *Discrete Event Dynamic Systems, Theory and Applications*, **4** (1994) 406-409.

Papers under Review/Working Papers

- Elmachtoub, A, Y. Zhou, The Value of Flexibility from Opaque Selling. (Major revision with *Operations Research.*)
- Yang, J., Yao, D.D., and Ye, H-Q., Interchange of Limits for Exponential Moments in the Generalized Jackson Network. (Major revision with *Math of OR.*)
- Haoxian Chen, Hanyang Zhao, Henry Lam, David Yao and Wenpin Tang, Mallows-DPO: Fine-Tune Your LLM with Preference Dispersion (submitted).

Presentations (summary list)

- Over 160 presentations at conferences of professional societies, including:

  ORSA/TIMS/INFORMS Joint National Conference, INFORMS International Conference, ORSA /TIMS/INFORMS Applied Probability Conference, ORSA Conference on Telecommunications, ORSA/TIMS Special Interest Meeting on Flexible Manufacturing Systems, International Federation of Operational Research Societies (IFORS) Conference, World Congress on Nonlinear Analysis, IEEE Conference on Decision and Control, America Control Conference, IEEE Conference on Robotics and Automation, SIAM Conference on Optimization and Control, International Conference on Production Research, Allerton Conference on Communication, Control and Computing, Industrial Engineering Conference (Research Forum).

- Over 120 invited seminar talks at universities and research institutions, including:

  University of California - Berkeley (3), Boston University, Brown University, University of British Columbia (2), University of California-Irvine, University of Chicago, Columbia University, University of Connecticut, Cornell University, Dalhousie University, Dartmouth College, Duke University, Georgia Institute of Technology (3), Harvard University (3), University of Illinois Urbana-Champaign (3), University of Maryland, Massachusetts Institute of Technology (4), University of Michigan (2), University of Minnesota, New York University, Northwestern University (2), University of Pennsylvania (4), Princeton University, Purdue University, Rensselaer Polytechnic Institute (2), University of Rochester, University of Southern California, Stanford University, Syracuse University, Texas A&M, University of Toronto (2), University of Waterloo (2), Yale University (2);

  ETH (Zurich), INSEAD, Catholic University of Leuven, Eindhoven University of Technology;

  Institute of Mathematics and its Applications, Workshop on Discrete-Event Systems; AMS/SIAM Workshop on the Mathematics of Manufacturing Systems;

  Chinese University of Hong Kong (6), Chinese University of Hong Kong Shenzhen, Hong Kong University of Science and Technology (5), University of Hong Kong (6), National Tsing Hua University (2), National Taiwan University, Academia Sinica (Taiwan), Fu Dan University, Shanghai Jiaotong University, Tsinghua University (9), Peking University, Nankai University, Tianjin University, National University of Singapore (6), Nanyang University of Technology, Singapore University of Technology and Design;

  Bell Laboratories (5), Bell Communications Research, Digital Equipment Corporation (Artificial Intelligence Research Lab.), Electric Power Research Institute, GTE Laboratories (3), IBM T.J. Watson Research Center (Leaders in Mathematical Sciences, and 4 other presentations), Philips Laboratories, Xerox Corporation (Mechanical Engineering Science Lab.).