

Stanford



Ramesh Johari

Professor of Management Science and Engineering and, by courtesy, of Electrical Engineering and of Computer Science

CONTACT INFORMATION

- **Administrator**

Jenny Lam - Administrative Associate

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Bio

BIO

Johari is broadly interested in the design, economic analysis, and operation of online platforms, as well as statistical and machine learning techniques used by these platforms (such as search, recommendation, matching, and pricing algorithms).

ACADEMIC APPOINTMENTS

- Professor, Management Science and Engineering
- Professor (By courtesy), Electrical Engineering
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Affiliate, Precourt Institute for Energy
- Member, Institute for Computational and Mathematical Engineering (ICME)
- Associate Director, Stanford Data Science
- Member, Stanford Causal Science Center

HONORS AND AWARDS

- George E. Nicholson Student Paper Competition (First Place), INFORMS (2003)
- Doctoral Dissertation Award (Honorable Mention), ACM (2004)
- George M. Sprowls Doctoral Dissertation Award, MIT EECS (2004)
- Management Science and Engineering Graduate Teaching Award, Stanford (2005)
- Okawa Foundation Research Grant, Okawa Foundation (2005)
- Telecommunications Dissertation Award, INFORMS (2006)
- CAREER Award, National Science Foundation (2007)
- Foundation Award, UPS (2008)
- Management Science and Engineering Graduate Teaching Award, Stanford (2010)
- Management Science and Engineering Graduate Teaching Award, Stanford (2017)

- Best Paper Award, ACM (2018)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Program co-chair, ACM Economics and Computation (2019 - 2019)
- Co-creator and co-organizer, Marketplace Innovation Workshop (2015 - 2019)

PROFESSIONAL EDUCATION

- PhD, MIT (2004)

LINKS

- <https://web.stanford.edu/people/ramesh.johari>: <https://web.stanford.edu/people/ramesh.johari>

Teaching

COURSES

2023-24

- Fundamentals of Data Science: Prediction, Inference, Causality: MS&E 226 (Aut)
- Introduction to Game Theory: MS&E 232 (Win)
- Topics in Social Data: MS&E 334 (Spr)

2022-23

- Fundamentals of Data Science: Prediction, Inference, Causality: MS&E 226 (Win)
- Introduction to Game Theory: MS&E 232 (Spr)

2021-22

- Fundamentals of Data Science: Prediction, Inference, Causality: MS&E 226 (Aut)
- Senior Project: MS&E 108 (Win)

2020-21

- Fundamentals of Data Science: Prediction, Inference, Causality: MS&E 226 (Aut)
- Introduction to Game Theory: MS&E 232 (Spr)
- Senior Project: MS&E 108 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Yeganeh Ali Mohammadi, Yuchen Hu, Yujin Jeong, Sahasrajit Sarmasarkar, Ravi Sojitra, Jacqueline Vallon

Doctoral Dissertation Advisor (AC)

Johannes Ferstad

Master's Program Advisor

Sara Abdali, Sri Donthineni, Connor Hoffmann, Qianmin Hu, Tran Le, Jenny Levitt, Renee Louis, Ethan Mehta, Uma Phatak, Candice Wang, Jianing Wu

Doctoral Dissertation Co-Advisor (AC)

Bob Junyi Zou

Doctoral (Program)

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Publications

PUBLICATIONS

- **Experimental Design in Two-Sided Platforms: An Analysis of Bias** *MANAGEMENT SCIENCE*
Johari, R., Li, H., Liskovich, I., Weintraub, G. Y.
2022
- **Teamwork, Targets, Technology, and Tight Control in Newly Diagnosed Type 1 Diabetes: Pilot 4T Study.** *The Journal of clinical endocrinology and metabolism*
Pralhad, P., Ding, V. Y., Zaharieva, D. P., Addala, A., Johari, R., Scheinker, D., Desai, M., Hood, K., Maahs, D. M.
2021
- **Always Valid Inference: Continuous Monitoring of A/B Tests** *OPERATIONS RESEARCH*
Johari, R., Koomen, P., Pekelis, L., Walsh, D.
2021
- **Population-level management of Type 1 diabetes via continuous glucose monitoring and algorithm-enabled patient prioritization: Precision health meets population health.** *Pediatric diabetes*
Ferstad, J. O., Vallon, J. J., Jun, D., Gu, A., Vitko, A., Morales, D. P., Leverenz, J., Lee, M. Y., Leverenz, B., Vasilakis, C., Osmanliu, E., Prahalad, P., Maahs, et al
2021
- **Managing Congestion in Matching Markets** *M&SOM-MANUFACTURING & SERVICE OPERATIONS MANAGEMENT*
Arnosti, N., Johari, R., Kanoria, Y.
2021; 23 (3): 620-636
- **Designing Informative Rating Systems: Evidence from an Online Labor Market** *M&SOM-MANUFACTURING & SERVICE OPERATIONS MANAGEMENT*
Garg, N., Johari, R.
2021; 23 (3): 589-605
- **Matching While Learning** *OPERATIONS RESEARCH*
Johari, R., Kamble, V., Kanoria, Y.
2021; 69 (2): 655–81
- **Studying Undergraduate Course Consideration at Scale** *AERA OPEN*
Chaturapruek, S., Dalberg, T., Thompson, M. E., Giebel, S., Harrison, M. H., Johari, R., Stevens, M. L., Kizilcec, R. F.
2021; 7
- **Learning Unknown Service Rates in Queues: A Multiarmed Bandit Approach** *OPERATIONS RESEARCH*
Krishnasamy, S., Sen, R., Johari, R., Shakkottai, S.
2021; 69 (1): 315–30
- **Adaptive Experimental Design with Temporal Interference: A Maximum Likelihood Approach**
Glynn, P., Johari, R., Rasouli, M., Larochelle, H., Ranzato, M., Hadsell, R., Balcan, M. F., Lin, H.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2020
- **Multi-Service Battery Operation with Cloud Electricity Storage**
Rasouli, M., Sun, T., Pache, C., Panciatici, P., Maeght, J., Johari, R., Rajagopal, R., IEEE
IEEE.2020
- **Competition and Efficiency of Coalitions in Cournot Games With Uncertainty** *IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS*
Zhang, B., Johari, R., Rajagopal, R.
2019; 6 (2): 884–96
- **Semi-Parametric Dynamic Contextual Pricing**
Shah, V., Blanchet, J., Johari, R., Wallach, H., Larochelle, H., Beygelzimer, A., d'Alche-Buc, F., Fox, E., Garnett, R.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019
- **Optimal Testing in the Experiment-rich Regime**
Schmit, S., Shah, V., Johari, R., Chaudhuri, K., Sugiyama, M.

MICROTOME PUBLISHING.2019: 626–33

- **Designing Optimal Binary Rating Systems**
Garg, N., Johari, R., Chaudhuri, K., Sugiyama, M.
MICROTOME PUBLISHING.2019
- **Bandit Learning with Positive Externalities**
Shah, V., Blanchet, J., Johari, R., Bengio, S., Wallach, H., Larochelle, H., Grauman, K., CesaBianchi, N., Garnett, R.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2018
- **On Learning the $c\mu$ Rule in Single and Parallel Server Networks**
Krishnasamy, S., Arapostathis, A., Johari, R., Shakkottai, S., IEEE
IEEE.2018: 153–54
- **Pricing and referrals in diffusion on networks** *GAMES AND ECONOMIC BEHAVIOR*
Leduc, M. V., Jackson, M. O., Johari, R.
2017; 104: 568–94
- **The Importance of Exploration in Online Marketplaces** *IEEE INTERNET COMPUTING*
Banerjee, S., Johari, R., Zhou, Z.
2016; 20 (1): 20-26
- **Competition and Coalition Formation of Renewable Power Producers** *IEEE TRANSACTIONS ON POWER SYSTEMS*
Zhang, B., Johari, R., Rajagopal, R.
2015; 30 (3): 1624-1632
- **Equilibria of dynamic games with many players: Existence, approximation, and market structure** *JOURNAL OF ECONOMIC THEORY*
Adlakha, S., Johari, R., Weintraub, G. Y.
2015; 156: 269-316
- **Can I Take a Peek? Continuous Monitoring of Online A/B Tests**
Johari, R., ACM
ASSOC COMPUTING MACHINERY.2015: 915
- **Mean Field Equilibria of Dynamic Auctions with Learning** *MANAGEMENT SCIENCE*
Iyer, K., Johari, R., Sundararajan, M.
2014; 60 (12): 2949-2970
- **Information Aggregation and Allocative Efficiency in Smooth Markets** *MANAGEMENT SCIENCE*
Iyer, K., Johari, R., Moallemi, C. C.
2014; 60 (10): 2509-2524
- **A Buffer-Based Approach to Rate Adaptation: Evidence from a Large Video Streaming Service** *SIGCOMM Conference*
Huang, T., Johari, R., McKeown, N., Trunnell, M., Watson, M.
ASSOC COMPUTING MACHINERY.2014: 187–98
- **Mean Field Equilibrium in Dynamic Games with Strategic Complementarities** *OPERATIONS RESEARCH*
Adlakha, S., Johari, R.
2013; 61 (4): 971-989
- **Dynamics in tree formation games** *GAMES AND ECONOMIC BEHAVIOR*
Arcaute, E., Dyagilev, K., Johari, R., Mannor, S.
2013; 79: 1-29
- **Mean Field Equilibria of Multi Armed Bandit Games** *50th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*
Gummadi, R., Johari, R., Yu, J. Y.
IEEE.2013: 1110–1110
- **Economic Modeling in Networking: A Primer.** *Foundations and Trends in Networking*
Berry, R., Johari, R.

NOW Publishers..2013: 1

- **Heavy Traffic Approximation of Equilibria in Resource Sharing Games** *IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS*
Wu, Y., Loc Bui, L., Johari, R.
2012; 30 (11): 2200-2209
- **Traffic Engineering With Semiautonomous Users: A Game-Theoretic Perspective** *IEEE-ACM TRANSACTIONS ON NETWORKING*
DiPalantino, D., Johari, R.
2012; 20 (6): 1938-1949
- **Resource management with semiautonomous users.** *To appear in IEEE/ACM Transactions on Networking.*
DiPalantino, D., Johari, R.
2012
- **Mean field equilibria of multiarmed bandit games.**
Gummadi, R., Johari, R., Yu, J.-Y.
2012
- **Information and the value of execution guarantees.**
Iyer, K., Johari, R., Moallemi, C., C.
2012
- **Mean Field Equilibria of Dynamic Auctions with Learning** *SI GECOM EXCHANGES*
Iyer, K., Johari, R., Sundararajan, M.
2011; 10 (3): 10–14
- **Bilateral and Multilateral Exchanges for Peer-Assisted Content Distribution** *IEEE-ACM TRANSACTIONS ON NETWORKING*
Aperjis, C., Johari, R., Freedman, M. J.
2011; 19 (5): 1290-1303
- **Parameterized Supply Function Bidding: Equilibrium and Efficiency** *OPERATIONS RESEARCH*
Johari, R., Tsitsiklis, J. N.
2011; 59 (5): 1079-1089
- **Competition and contracting in service industries** *OPERATIONS RESEARCH LETTERS*
DiPalantino, D., Johari, R., Weintraub, G. Y.
2011; 39 (5): 390-396
- **How Many Tiers? Pricing in the Internet Transit Market** *COMPUTER COMMUNICATION REVIEW*
Valancius, V., Lumezanu, C., Feamster, N., Johari, R., Vazirani, V. V.
2011; 41 (4): 194-205
- **Uncoupled Potentials for Proportional Allocation Markets** *50th IEEE Conference of Decision and Control (CDC)/European Control Conference (ECC)*
Nadav, U., Johari, R., Roughgarden, T.
IEEE.2011: 4479–4484
- **Economic Modeling in Networking: A Primer** *FOUNDATIONS AND TRENDS IN NETWORKING*
Berry, R. A., Johari, R.
2011; 6 (3): 165–286
- **Heavy traffic approximation of equilibria in resource sharing games.**
Wu, Y., Bui, L., Johari, R.
2011
- **Committing bandits.**
Bui, L., Johari, R., Mannor, S.
2011
- **How many tiers? Pricing in the Internet transit market.**
Valancius, V., Lumezanu, C., Feamster, N., Johari, R., Vazirani, V.

2011

- **Mean field equilibria of dynamic auctions with learning.**
Iyer, K., Johari, R., Sundararajan, M.
2011
- **Investment and Market Structure in Industries with Congestion** *OPERATIONS RESEARCH*
Johari, R., Weintraub, G. Y., Van Roy, B.
2010; 58 (5): 1303-1317
- **Designing Aggregation Mechanisms for Reputation Systems in Online Marketplaces** *SI GECOM EXCHANGES*
Aperjjs, C., Johari, R.
2010; 9 (1)
- **Optimal Windows for Aggregating Ratings in Electronic Marketplaces** *MANAGEMENT SCIENCE*
Aperjjs, C., Johari, R.
2010; 56 (5): 864-880
- **Demand-Aware Content Distribution on the Internet** *IEEE-ACM TRANSACTIONS ON NETWORKING*
Shakkottai, S., Johari, R.
2010; 18 (2): 476-489
- **Information-Theoretic Operating Regimes of Large Wireless Networks** *IEEE TRANSACTIONS ON INFORMATION THEORY*
Ozgun, A., Johari, R., Tse, D. N., Leveque, O.
2010; 56 (1): 427-437
- **Mean field equilibrium in dynamic games with complementarities.**
Adlakha, S., Johari, R.
2010
- **Information aggregation in smooth markets.**
Iyer, K., Johari, R., Moallemi, C., C.
2010
- **Congestible services and network effects.**
Johari, R., Kumar, S.
2010
- **Information theoretic operating regimes of large wireless networks.** *IEEE Transactions on Information Theory*
Ozgun, A., Johari, R., Tse, D., Leveque, O.
2010; 1 (56): 427-437
- **Mean field analysis for large population stochastic games.**
Adlakha, S., Johari, R., Weintraub, G., Y., Goldsmith, A.
2010
- **On Oblivious Equilibrium in Large Population Stochastic Games** *49th IEEE Conference on Decision and Control (CDC)*
Adlakha, S., Johari, R., Weintraub, G. Y., Goldsmith, A.
IEEE.2010: 3117–3124
- **Mean Field Equilibrium in Dynamic Games with Complementarities** *49th IEEE Conference on Decision and Control (CDC)*
Adlakha, S., Johari, R.
IEEE.2010: 6633–6638
- **Network Formation: Bilateral Contracting and Myopic Dynamics** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
Arcaute, E., Johari, R., Mannor, S.
2009; 54 (8): 1765-1778
- **Efficiency of Scalar-Parameterized Mechanisms** *43rd Annual Allerton Conference on Communication, Control and Computing*
Johari, R., Tsitsiklis, J. N.

INFORMS.2009: 823–39

- **Supermodular Network Games** *47th Annual Allerton Conference on Communication, Control, and Computing*
Manshadi, V. H., Johari, R.
IEEE.2009: 1369–1376
- **Network formation: bilateral contracting and myopic dynamics.** *IEEE Transactions on Automatic Control*
Arcaute, E., Johari, R., Mannor, S.
2009; 8 (54): 1765-1778
- **Comparing Multilateral and Bilateral Exchange Models for Content Distribution** *IEEE Information Theory Workshop on Networking and Information Theory*
Aperjjs, C., Freedman, M. J., Johari, R.
IEEE.2009: 145–146
- **Traffic Engineering vs. Content Distribution: A Game Theoretic Perspective** *IEEE INFOCOM Conference 2009*
DiPalantino, D., Johari, R.
IEEE.2009: 540–548
- **Traffic Engineering, Content Distribution, and Continuous Potential Games** *International Conference on Game Theory for Networks*
DiPalantino, D., Johari, R.
IEEE.2009: 98–99
- **Oblivious Equilibrium: An Approximation to Large Population Dynamic Games with Concave Utility** *International Conference on Game Theory for Networks*
Adlakha, S., Johari, R., Weintraub, G., Goldsmith, A.
IEEE.2009: 68–69
- **A Mean Field Approach to Competition in Large Scale Wireless Systems** *MobiHoc S3 Workshop*
Adlakha, S., Johari, R., Weintraub, G., Goldsmith, A.
ASSOC COMPUTING MACHINERY.2009: 13–15
- **Lump-Sum Markets for Air Traffic Flow Control with Competitive Airlines** *PROCEEDINGS OF THE IEEE*
Waslander, S. L., Roy, K., Johari, R., Tomlin, C. J.
2008; 96 (12): 2113-2130
- **Information Theoretic Operating Regimes of Large Wireless Networks** *IEEE International Symposium on Information Theory*
Oezguer, A., Johari, R., Tse, D., Leveque, O.
IEEE.2008: 186–190
- **Local myopic dynamics in network formation games.**
Arcaute, E., Johari, R., Mannor, S.
2008
- **Peer-assisted content distribution with prices.**
Aperjjs, C., Freedman, M., J., Johari, R.
2008
- **Oblivious equilibrium for general stochastic games with unbounded costs.**
Adlakha, S., Johari, R., Weintraub, G., Y., Goldsmith, A.
2008
- **Oblivious equilibrium for general stochastic games with concave costs.**
Adlakha, S., Johari, R., Weintraub, G., Y., Goldsmith, A.
2008
- **A comparison of bilateral and multilateral exchanges for peer-assisted content distribution.**
Aperjjs, C., Freedman, M., J., Johari, R.
2008
- **Prices are right: aligning incentives for peer-assisted content distribution.**
Freedman, M., J., Aperjjs, C., Johari, R.

2008

- **A comparison of bilateral and multilateral exchanges for peer-assisted content distribution.**
Aperjis, C., Freedman, M., J., Johari, R.
2008
- **Local Dynamics for Network Formation Games** *46th Annual Allerton Conference on Communication, Control and Computing*
Arcaute, E., Johari, R., Mannor, S.
IEEE.2008: 937–938
- **Local Two-Stage Myopic Dynamics for Network Formation Games** *4th International Workshop on Internet and Network Economics*
Arcaute, E., Johari, R., Mannor, S.
SPRINGER-VERLAG BERLIN.2008: 263–277
- **Oblivious Equilibrium for Stochastic Games with Concave Utility** *46th Annual Allerton Conference on Communication, Control and Computing*
Adlakha, S., Johari, R., Weintraub, G., Goldsmith, A.
IEEE.2008: 1304–1308
- **Oblivious Equilibrium for Large-Scale Stochastic Games with Unbounded Costs** *47th IEEE Conference on Decision and Control*
Adlakha, S., Johari, R., Weintraub, G., Goldsmith, A.
IEEE.2008: 5531–5538
- **Implications of autonomy for the expressiveness of policy routing** *IEEE-ACM TRANSACTIONS ON NETWORKING*
Feamster, N., Johari, R., Balakrishnan, H.
2007; 15 (6): 1266-1279
- **Partially optimal routing** *40th Annual Conference on Information Sciences and Systems (CISS)*
Acemoglu, D., Johari, R., Ozdaglar, A.
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2007: 1148–60
- **Network formation: Bilateral contracting and myopic dynamics** *3rd International Workshop on Internet and Network Economics*
Arcaute, E., Johari, R., Mannor, S.
SPRINGER-VERLAG BERLIN.2007: 191–207
- **Efficiency loss and the design of scalable resource allocation mechanisms.** *Algorithmic Game Theory*
Johari, R.
edited by Nisan, N., Roughgarden, T., Tardos, E.
Cambridge University Press: Cambridge, United Kingdom..2007: 543–567
- **Revenue management for content delivery.**
Shakkottai, S., Johari, R.
2007
- **Network formation: bilateral contracting and myopic dynamics.**
Arcaute, E., Johari, R., Mannor, S.
2007
- **Oblivious equilibrium for general stochastic games with many players.**
Abhishek, V., Adlakha, S., Johari, R., Weintraub, G., Y.
2007
- **Dynamics and stability in network formation games with bilateral contracts** *46th IEEE Conference on Decision and Control*
Arcaute, E., Dallal, E., Johari, R., Mannor, S.
IEEE.2007: 5871–5878
- **A contract-based model for directed network formation** *GAMES AND ECONOMIC BEHAVIOR*
Johari, R., Mannor, S., Tsitsiklis, J. N.
2006; 56 (2): 201-224
- **A scalable network resource allocation mechanism with bounded efficiency loss** *IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS*
Johari, R., Tsitsiklis, J. N.

2006; 24 (5): 992-999

- **Paradoxes of traffic engineering with partially optimal routing** *40th Annual Conference on Information Sciences and Systems (CISS)*
Acemoglu, D., Johari, R., Ozdaglar, A.
IEEE.2006: 661–667
- **Positive externalities and optimal scale.**
Kumar, S., Johari, R.
2006
- **A peer-to-peer system as an exchange economy.**
Aperjis, C., Johari, R.
2006
- **Efficiency-loss in a network resource allocation game: The case of elastic supply** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
Johari, R., Mannor, S., Tsitsiklis, J. N.
2005; 50 (11): 1712-1724
- **Implications of autonomy for the expressiveness of policy routing** *SIGCOMM/ACM Conference on Computer Communications*
Feamster, N., Johari, R., Balakrishnan, H.
ASSOC COMPUTING MACHINERY.2005: 25–36
- **A game theoretic view of efficiency loss in resource allocation** *Symposium on Systems, Control, and Networks*
Johari, R., Tsitsiklis, J. N.
BIRKHAUSER BOSTON.2005: 203–223
- **Communication requirements of VCG-like mechanisms in convex environments.**
Johari, R., Tsitsiklis, J., N.
2005
- **Efficiency loss in a network resource allocation game: the case of elastic supply.** *IEEE Transactions on Automatic Control*
Johari, R., Mannor, S., Tsitsiklis, J., N.
2005; 11 (50): 1712-1724
- **Efficiency loss in a network resource allocation game** *MATHEMATICS OF OPERATIONS RESEARCH*
Johari, R., Tsitsiklis, J. N.
2004; 29 (3): 407-435
- **Routing and peering in a competitive Internet** *43rd IEEE Conference on Decision and Control*
Johari, R., Tsitsiklis, J. N.
IEEE.2004: 1556–1561
- **Efficiency loss in a resource allocation game: A single link in elastic supply** *43rd IEEE Conference on Decision and Control*
Johari, R., Mannor, S., Tsitsiklis, J. N.
IEEE.2004: 4679–4683
- **Network resource allocation and a congestion game: the single link case.**
Johari, R., Tsitsiklis, J., N.
2003
- **End-to-end congestion control for the Internet: delays and stability.** *IEEE/ACM Transactions on Networking*
Johari, R., Tan, D., K.H.
2001; 6 (9): 818-832