Stanford



Mohsen Bayati

Carl and Marilynn Thoma Professor in the Graduate School of Business and Professor, by courtesy, of Electrical Engineering and of Radiation Oncology (Radiation Therapy)

Operations, Information & Technology

Curriculum Vitae available Online

Bio

BIO

https://web.stanford.edu/~bayati/bio.html

ACADEMIC APPOINTMENTS

- Professor, Operations, Information & Technology
- Professor (By courtesy), Electrical Engineering
- Professor (By courtesy), Radiation Oncology - Radiation Therapy
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)

HONORS AND AWARDS

- National Science Foundation CAREER Award, Stanford University (2016)
- William Pierskalla best paper award, INFORMS Health Applications Society (2016)
- Best paper award, INFORMS Applied Probability Society (2015)
- William Pierskalla best paper award, INFORMS Health Applications Society (2014)
- Gold Medal, International Mathematics Olympiad (1997)

LINKS

- Homepage: https://web.stanford.edu/~bayati/
- Department website: http://www.gsb.stanford.edu/faculty-research/faculty/mohsen-bayati
- Google Scholar Page: https://scholar.google.com/citations?user=PS-TM94AAAAJ

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

https://web.stanford.edu/~bayati/pub-chron.html

Teaching

COURSES

2026-27

- Business Intelligence from Big Data and AI: OIT 367 (Win)

2025-26

- Business Intelligence from Big Data: OIT 367 (Win)
- Management Science in the Age of AI: OIT 612 (Aut)

2024-25

- Business Intelligence from Big Data: OIT 367 (Win)
- Data, Learning, and Decision-Making: OIT 604 (Aut)

2023-24

- Business Intelligence from Big Data: OIT 367 (Win)
- Research in Operations, Information and Technology: OIT 644 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Anders Wikum

Doctoral Dissertation Advisor (AC)

William Overman, Joyee Wang

Doctoral (Program)

William Overman, Tony Ye

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biomedical Data Science (PhD Program)

Publications

PUBLICATIONS

- **Large language models for preventing medication direction errors in online pharmacies.** *Nature medicine*
  Pais, C., Liu, J., Voigt, R., Gupta, V., Wade, E., Bayati, M.
  2024
- **Predicting Primary Care Physician Burnout From Electronic Health Record Use Measures.** *Mayo Clinic proceedings*
  Tawfik, D., Bayati, M., Liu, J., Nguyen, L., Sinha, A., Kannampallil, T., Shanafelt, T., Profit, J.
  2024
- **Optimal Experimental Design for Staggered Rollouts** *MANAGEMENT SCIENCE*
  Xiong, R., Athey, S., Bayati, M., Imbens, G.
  2023
- **Technical Note-The Elliptical Potential Lemma for General Distributions with an Application to Linear Thompson Sampling** *OPERATIONS RESEARCH*
  Hamidi, N., Bayati, M.
  2022
- **On Low-rank Trace Regression under General Sampling Distribution** *JOURNAL OF MACHINE LEARNING RESEARCH*
  Hamdi, N., Bayati, M.
  2022; 23
- **Frustration With Technology and its Relation to Emotional Exhaustion Among Health Care Workers: Cross-sectional Observational Study.** *Journal of medical Internet research*
  Tawfik, D. S., Sinha, A., Bayati, M., Adair, K. C., Shanafelt, T. D., Sexton, J. B., Profit, J.

2021; 23 (7): e26817

- **Matrix Completion Methods for Causal Panel Data Models** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*
  Athey, S., Bayati, M., Doudchenko, N., Imbens, G., Khosravi, K.
  2021
- **Mostly Exploration-Free Algorithms for Contextual Bandits** *MANAGEMENT SCIENCE*
  Bastani, H., Bayati, M., Khosravi, K.
  2021; 67 (3)
- **PatientFlowNet: A Deep Learning Approach to Patient Flow Prediction in Emergency Departments** *IEEE ACCESS*
  Sharafat, A. R., Bayati, M.
  2021; 9: 45552–61
- **Online Decision Making with High-Dimensional Covariates** *OPERATIONS RESEARCH*
  Bastani, H., Bayati, M.
  2020; 68 (1): 276–94
- **Recommendation on a Budget: Column Space Recovery from Partially Observed Entries with Random or Active Sampling**
  Kim, C., Bayati, M.
  edited by Chiappa, S., Calandra, R.
  ADDISON-WESLEY PUBL CO.2020: 445–54
- **Evidence of Upcoding in Pay-for-Performance Programs** *MANAGEMENT SCIENCE*
  Bastani, H., Goh, J., Bayati, M.
  2019; 65 (3): 1042–60
- **Scalable Approximations for Generalized Linear Problems** *JOURNAL OF MACHINE LEARNING RESEARCH*
  Erdogdu, M. A., Bayati, M., Dicker, L. H.
  2019; 20
- **Personalizing Many Decisions with High-Dimensional Covariates**
  Hamidi, N., Bayati, M., Gupta, K.
  edited by Wallach, H., Larochelle, H., Beygelzimer, A., d'Alche-Buc, F., Fox, E., Garnett, R.
  NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019
- **Personalizing Many Decisions with High-Dimensional Covariates** *Advances in Neural Information Processing Systems 32*
  Hamidi, N., Bayati, M., Gupta, K.
  2019
- **Generating Random Networks Without Short Cycles** *OPERATIONS RESEARCH*
  Bayati, M., Montanari, A., Saberi, A.
  2018; 66 (5): 1227–46
- **Data Uncertainty in Markov Chains: Application to Cost-Effectiveness Analyses of Medical Innovations** *OPERATIONS RESEARCH*
  Goh, J., Bayati, M., Zenios, S. A., Singh, S., Moore, D.
  2018; 66 (3): 697–715
- **Accurate Emergency Department Wait Time Prediction** *M&SOM-MANUFACTURING & SERVICE OPERATIONS MANAGEMENT*
  Ang, E., Kwasnick, S., Bayati, M., Plambeck, E. L., Aratow, M.
  2016; 18 (1): 141-156
- **Scaled Least Squares Estimator for GLMs in Large-Scale Problems**
  Erdogdu, M. A., Bayati, M., Dicker, L. H.
  edited by Lee, D. D., Sugiyama, M., Luxburg, U. V., Guyon, Garnett, R.
  NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2016
- **Statistical analysis of a low cost method for multiple disease prediction.** *Statistical methods in medical research*
  Bayati, M., Bhaskar, S., Montanari, A.
  2016: 962280216680242-?

- **Active Postmarketing Drug Surveillance for Multiple Adverse Events** *OPERATIONS RESEARCH*
  Goh, J., Bjarnadottir, M. V., Bayati, M., Zenios, S. A.
  2015; 63 (6): 1528-1546
- **UNIVERSALITY IN POLYTOPE PHASE TRANSITIONS AND MESSAGE PASSING ALGORITHMS** *ANNALS OF APPLIED PROBABILITY*
  Bayati, M., Lelarge, M., Montanari, A.
  2015; 25 (2): 753-822
- **Bargaining dynamics in exchange networks** *JOURNAL OF ECONOMIC THEORY*
  Bayati, M., Borgs, C., Chayes, J., Kanoria, Y., Montanari, A.
  2015; 156: 417-454
- **A Low-Cost Method for Multiple Disease Prediction.** *AMIA ... Annual Symposium proceedings / AMIA Symposium. AMIA Symposium*
  Bayati, M., Bhaskar, S., Montanari, A.
  2015; 2015: 329-338
- **Identifying Patients at High Risk for Readmission following Treatment for Acute Myocardial Infarction: a Data-Centric Approach**
  Baker, N. C., Bayati, M., Torguson, R., Mack, K., Rappaport, H., Horvitz, E., Waksman, R.
  LIPPINCOTT WILLIAMS & WILKINS.2014
- **Data-driven decisions for reducing readmissions for heart failure: general methodology and case study.** *PloS one*
  Bayati, M., Braverman, M., Gillam, M., Mack, K. M., Ruiz, G., Smith, M. S., Horvitz, E.
  2014; 9 (10): e109264
- **COMBINATORIAL APPROACH TO THE INTERPOLATION METHOD AND SCALING LIMITS IN SPARSE RANDOM GRAPHS** *ANNALS OF PROBABILITY*
  Bayati, M., Gamarnik, D., Tetali, P.
  2013; 41 (6): 4080-4115
- **Message-Passing Algorithms for Sparse Network Alignment** *ACM TRANSACTIONS ON KNOWLEDGE DISCOVERY FROM DATA*
  Bayati, M., Gleich, D. F., Saberi, A., Wang, Y.
  2013; 7 (1)
- **Estimating LASSO Risk and Noise Level** *Neural Information Processing Systems 26*
  Bayati, M., Erdogdu, M., Montanari, A.
  2013
- **The LASSO Risk for Gaussian Matrices** *IEEE TRANSACTIONS ON INFORMATION THEORY*
  Bayati, M., Montanari, A.
  2012; 58 (4): 1997-2017
- **The Dynamics of Message Passing on Dense Graphs, with Applications to Compressed Sensing** *IEEE International Symposium on Information Theory*
  Bayati, M., Montanari, A.
  IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2011: 764–85
- **BELIEF PROPAGATION FOR WEIGHTED b-MATCHINGS ON ARBITRARY GRAPHS AND ITS RELATION TO LINEAR PROGRAMS WITH INTEGER SOLUTIONS** *SIAM JOURNAL ON DISCRETE MATHEMATICS*
  Bayati, M., Borgs, C., Chayes, J., Zecchina, R.
  2011; 25 (2): 989-1011
- **A Sequential Algorithm for Generating Random Graphs** *ALGORITHMICA*
  Bayati, M., Kim, J. H., Saberi, A.
  2010; 58 (4): 860-910
- **A rigorous analysis of the cavity equations for the minimum spanning tree** *JOURNAL OF MATHEMATICAL PHYSICS*
  Bayati, M., Braunstein, A., Zecchina, R.
  2008; 49 (12)
- **Statistical mechanics of Steiner trees** *PHYSICAL REVIEW LETTERS*

Bayati, M., Borgs, C., Braunstein, A., Chayes, J., Ramezanpour, A., Zecchina, R.
2008; 101 (3): 037208

- **On the exactness of the cavity method for weighted b-matchings on arbitrary graphs and its relation to linear programs** *JOURNAL OF STATISTICAL MECHANICS-THEORY AND EXPERIMENT*
  Bayati, M., Borgs, C., Chayes, J., Zecchina, R.
  2008
- **Max-product for maximum weight matching: Convergence, correctness, and LP duality**
  Bayati, M., Shah, D., Sharma, M.
  IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2008: 1241–51
- **Simple Deterministic Approximation Algorithms for Counting Matchings** *STOC 07: PROCEEDINGS OF THE 39TH ANNUAL ACM SYMPOSIUM ON THEORY OF COMPUTING*
  Bayati, M., Gamarnik, D., Katz, D., Nair, C., Tetali, P.
  2007: 122-127
- **Iterative scheduling algorithms** *26th IEEE Conference on Computer Communications (INFOCOM 2007)*
  Bayati, M., Prabhakar, B., Shah, D., Sharma, M.
  IEEE.2007: 445–453
- **A simpler max-product Maximum Weight Matching algorithm and the auction algorithm** *IEEE International Symposium on Information Theory*
  Bayati, M., Shah, D., Sharma, M.
  IEEE.2006: 557–561
- **Maximum weight matching via max-product belief propagation** *IEEE International Symposium on Information Theory and Its Applications*
  Bayati, M., Shah, D., Sharma, M.
  IEEE.2005: 1763–1767
- **Achieving stability in networks of input-queued switches using a local online scheduling policy** *GLOBECOM '05: IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE, VOLS 1-6*
  Nabar, S. U., Kumar, N., Bayati, M., Keshavarzian, A.
  2005: 694-698