

Vasant Dhar

Professor, Stern School of Business
Director, PhD Program, NYU Center for Data Science

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RESEARCH QUESTION:

When do we trust AI learning machines with decision making?

RESEARCH THEMES:

My research themes are on the properties and trustworthiness of Machine Learning Systems and their implications for business and society. On the technical side, I analyze the stability of data-driven machine learning models for decision making across problem domains. It is motivated by several decades of machine learning research in finance and other domains in business and healthcare. On the policy side, I focus on responsible data science and data governance.

PROFESSIONAL PREPARATION

B.Tech, Indian Institute of Technology, Delhi, May 1978.

M.Phil, University of Pittsburgh, August 1982

Ph.D, University of Pittsburgh, June 1984

APPOINTMENTS

- Professor, Stern School of Business, New York University, September 1983 – current. Teaching:
 - Systematic Investing
 - FinTech
 - Data Science and Machine Learning
- Professor of Data Science and Director of Graduate Studies, Ph.D program in Data Science, Center for Data Science, New York University, Sep 2015 – current.
- Editor in chief, *Big Data* journal, March 2013 – March 2018.

RECENT EDITORIALS

- <https://www.businessinsider.com/social-media-platforms-facebook-google-twitter-undermining-democracy-2020-9>
- <https://www.marketwatch.com/story/day-trading-tales-remind-us-that-humans-are-poor-investors-and-even-worse-traders-2020-06-25>
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- Who Controls Your Data? The Washington Post, Sep 25, 2018.
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- A Dangerous Situation at Facebook Could Get Much Worse if we Don't Take Immediate Steps, March 22, 2018.
- Why Quants Fail in Finance, eFinancialCareers, February 5, 2018.
- We are asking all the wrong questions about the future of jobs, World Economic Forum, August 2017. <https://www.weforum.org/agenda/2017/08/machines-and-the-future-of-work/>
- Should We Regulate Digital Platforms? Big Data, December 2017.
- Social media platforms present dangerous issues for society, CNBC, December 21, 2017.
- What is the Role of Artificial Intelligence in Sports? Big Data, volume 5, number 3, September 2017.
- Big Data as an Enabler for Primary Education, with Nandan Nilekani, Shankar Maruwada, and Nagraj Pappu, Big Data, volume 4, issue 3, September 2016.
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- Should You Trust Your Money to a Robot? Editorial, Big Data Journal, volume 3, issue 2, June 2015.
- Can Big Data Machines Analyze Stock Market Sentiment? Editorial, Big Data Journal, volume 2, issue 4, December 2014.
- Bright lights, big data: What the market may tell us about a correction, Market Commentary CNBC, November 15, 2014, <http://www.cnbc.com/id/102179024>
- Information Systems Research, September 2014, Data Science, Analytics, Big Data: The Challenges for IS Research (with Ritu Agarwal)
- Big Data Journal, September 2014, Big Data and Predictive Analytics in Healthcare, September 2014.
- Big Data Journal, June 2014, The Rise of Machines in Financial Markets
- Financial Times, March 23, 2014, Caught Between a Rock and a Hard Place: <http://www.ft.com/intl/cms/s/2/4d43d616-a458-11e3-9cb0-00144feab7de.html#axzz2wsx0gbOI>
- CNBC op-ed April 16, 2014, Speed – the only HFT advantage? Not so fast: <http://www.cnbc.com/id/101586488>
- Wired Magazine Op-ed. October 5, 2013, Google in Jeopardy: <http://www.wired.com/2013/10/google-in-jeopardy-what-if-watson-beat-the-search-giant/>
- Financial Times Op-ed., Business Schools Face a Challenging Future, January 7, 2013. Available at: <http://www.ft.com/intl/cms/s/2/e111f93e-3a39-11e2-a00d-00144feabdc0.html#axzz2KQBc0iDL>

Publications

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<https://www.joim.com/wp-content/uploads/remember/downloads/p0644.pdf>
2. Dhar, V., Sun, C., and Batra, P., Transforming Finance into Vision: Concurrent Financial Series as Convolutional Nets, *Big Data*, volume 7, number 4, December 2019.
3. Dhar, V., and Stein, R., Complete and Incomplete FinTech Platforms, *Journal of Investment Management*, vol 16, No 2, 2018.
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5. Dhar, V., and Stein, R., FinTech Platforms and Strategy, *Communications of the ACM*, volume 60, number 10, September 2017.
6. Dhar, V., Equity, Safety and Privacy in the Autonomous Vehicle Era, *IEEE Computer*, volume 49, number 11, November 2016.
7. Dhar, V., When to Trust Robots With Decisions and When Not To, *Harvard Business Review*, May 2016.
8. Dhar, Geva, Sundararajan, Oestecher-Singer., Prediction in Economic Networks, *Information Systems Research*, Volume 25, Issue 2, June 2014.
9. Dhar, V., Prediction and Data Science, *Communications of the ACM*, volume 56, number 12, December 2013.
10. Maguire, Jon., Vasant Dhar., Data Mining in Healthcare: Using Large Scale Health Care Claims Data for Comparative Effectiveness Research, *Health Systems*, volume 1, Number 2, December 2012.
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12. Dhar, V., and Ghose, A., Sponsored Search and Market Efficiency, *Information Systems Research*, December 2010.
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16. Dhar, V., Chou, D., and Provost (2000)., Discovering Interesting Patterns in Investment Decision Making with GLOWER – A Genetic Learning Algorithm Overlaid With Entropy Reduction, *Data Mining and Knowledge Discovery*, October 2000.

17. Dhar, V., Data Mining in Finance: Using Counterfactuals to Generate Knowledge from Organizational Information Systems, *Information Systems*, Volume 23, No. 7, 1998..
18. Benaroch, M., and Dhar, V., Controlling the Complexity of Investment Decisions Using Qualitative Reasoning Techniques, *Decision Support Systems*, Vol. 15, December 1995.
19. Stein, R., and Dhar, V., Satisfying Customers: Intelligently Scheduling High Volume Service Requests, *AI Expert*, December 1994.
20. Ramesh, B., and Dhar, V., Representing and Maintaining Process Knowledge for Large Scale Systems Development, *IEEE Expert*, Vol. 9, No. 4, April 1994.
21. Dhar, V., and Tuzhilin, A., Abstract Driven Pattern Discovery in Databases, *IEEE Transactions on Knowledge and Data Engineering*, Vol. 5, No. 6, December 1993.
22. Croker, A., and Dhar, V., A Knowledge Representation for Constraint Satisfaction Problems, *IEEE Transactions on Knowledge and Data Engineering*, Vol. 5, No. 5, October 1993.
23. Ramesh, B., and Dhar, V., Process Knowledge-Based Group Support for Requirements Engineering, *IEEE Transactions on Software Engineering*, Vol. 18, No. 6, June 1992.
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25. Chen, H., and Dhar, V., Cognitive Process as a Basis for Intelligent Retrieval Systems Design, *Information Processing and Management*, Vol. 27, No. 3, 1991.
26. Dhar, V., and Ranganathan, N., Integer Programming vs. Expert Systems: An Experimental Comparison, *Communications of the ACM*, Vol. 33, No. 3, March 1990.
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28. Dhar, V., A Truth Maintenance System for Supporting Constraint-Based Reasoning, *Decision Support Systems*, Vol. 5, Fall 1989.
29. Peters, J., Lewis, B., and Dhar, V., Assessing Inherent Risk During Audit Planning: The Development of a Knowledge-Based Model, *Accounting, Organizations, and Society*, Vol. 14, No. 4, pp. 359-378, 1989.
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39. Maguire, Jon., Vasant Dhar and Jamie Schafer., Data Mining in Healthcare: Using Large Scale Health Care Claims Data for Comparative Effectiveness Research, Workshop on Healthcare IT and Economics (WHITE), University of Maryland, October 21, 2011.
40. Mc Macskassy, S, Hirsh, H., Provost, F., Sankaranarayanan, R., Dhar, Vasant., Intelligent Information Triage, The 24th Annual International Conference on Research and Development in Information Retrieval (SIGIR), September 2001.
41. Dhar, V., and Sundarajan, A., Customer Interaction Patterns in Electronic Commerce: Maximizing Information Liquidity for Adaptive Decision Making, European Conference of Information Systems, Vienna, Austria, July 2000.
42. Madhavan, R., Dhar, V., and Weigend, A., The Value of Transparency: An Empirical Comparison of GARCH, Rule-Based, and Neural Net Trading Models, *Neural Networks in Capital Markets*, December 1997.
43. Johar, H., and Dhar, V., Dependency Based Coordination for Consistent Solutions in Distributed Work, *Information and Knowledge Management, CIKM-92*, Baltimore, MD, November, 1992.
44. Benaroch, M., and Dhar, V., Qualitative Synthesis of System Configurations Based on Desired Behavior, *9th Canadian Conference on Artificial Intelligence*, Vancouver, Canada, IEEE Press, May 1992.
45. Ramesh, B., and Dhar, V., Process Knowledge-Based Modification in Systems Development, *AAAI-92 Stanford Spring Symposium*, Stanford, CA, March 1992.
46. Benaroch, M., and Dhar, V., A Knowledge-Based Approach to Solving Hedge Design Problems, *First International Conference on Wall Street Applications*, New York, NY, October 1991.
47. Ramesh, B., and Dhar, V., Process Knowledge-based Modification in Systems Development, working paper, Naval Postgraduate School, Monterey, CA, October 1991. Also appears in *AAAI-92 Stanford Spring Symposium*.
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49. Ramesh, B., and V. Dhar, Capturing and Reasoning with Process Knowledge in Large Scale Systems Design and Maintenance, *Workshop on Design Synthesis*, S. Howell, ed., Silver Springs, MD, September 1991.
50. Benaroch, M., and Dhar, V., An Intelligent System for Financial Hedging, *Seventh IEEE Conference on Artificial Intelligence Applications*, Miami, FL, February 1991.
51. Chen, H., and Dhar, V., Online Query Refinement in IRS: A Process Model of Searcher/System Interaction, *13th International Conference on Research and Development in Information Retrieval*, Brussels, Belgium, September 5-7, 1990.

52. Rossi, F., Dhar, V., and Petrie, C., On the Equivalence of Constraint Satisfaction Problems, *Eleventh European Conference on Artificial Intelligence*, Stockholm, Sweden, August 1990.
53. Chen, H., and Dhar, V., A Knowledge-based Approach to the Design of Document-based Retrieval Systems, *Seventh International Conference on Office Information Systems*, MIT, Cambridge, MA, April 1990.
54. Ramesh, B., and Dhar, V., Knowledge-Based Support for Systems Design and Maintenance, Workshop on Automated Systems Design, *Eleventh International Joint Conference on Artificial Intelligence*, Detroit, MI, August 1989.
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67. Ramesh, B., and V. Dhar, Role of Process Knowledge in Group Decision Support, working paper, Naval Postgraduate School, Monterey, CA, December 1991.
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69. Dhar, V., Adding the Knowledge Component to Spreadsheet Systems: A Knowledge-based Architecture for the Formulation and Maintenance of Planning Models, in *Expertensysteme im Untemehmen (Expert Systems in Business)*, H. Krallman, ed., Erich Schmidt Verlag, Berlin, West Germany, 1986.
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Books/Edited Issues

71. *Data Mining and Knowledge Discovery, Special Issue on Outlier Detection, Volume 20 Number 2, March 2010 Co-editor (with David Hand and Sanjay Chawla)*,
72. Seven Methods for Transforming Corporate data Into Business Intelligence, Vasant Dhar and Roger Stein, published by Prentice-Hall (1997).
73. Intelligent Decision Support Methods: The Science of Knowledge Work, Prentice-Hall, NJ, 1997.
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78. Dhar, V., Duliba, K., and Kauffman, R., Re-Engineering Trading and Treasury Operations in International Financial Services, in *Global Information Systems and Technology*, C. Deans and K. Karwan, eds., Idea Group Publishing, Middletown, PA, 1994.
79. Ramesh, B., and Dhar, V., Group Support and Change Propagation in Requirements Engineering, in *Development Assistance for Interactive Database Applications*, M. Jarke, ed., Heidelberg, Germany, Springer Verlag, 1991.
80. Dhar, V., and Olson, M., Assumptions Underlying Systems that Support for Work Group Collaboration, *Technological Support for Work Group Collaboration*, Lawrence Erlbaum and Associates, New York, May 1987.