Prakash P. Shenoy

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Biographical Sketch

Prakash P. Shenoy is a Distinguished Professor Emeritus in the School of Business, University of Kansas at Lawrence. He received a B.Tech. in Mechanical Engineering from the Indian Institute of Technology, Bombay, India, in 1973 and an M.S. and a Ph.D. in Operations Research/ Industrial Engineering from Cornell University in 1975 and 1977, respectively. He joined the School of Business at the University of Kansas as an Assistant Professor in 1978. He was promoted to Associate Professor with tenure in 1982 and Full Professor in 1988. In 1994, he was appointed as the Ronald G. Harper Distinguished Professor of Artificial Intelligence, a position he held until his retirement in 2023.

   His research interests are in the areas of artificial intelligence and decision sciences. He is the inventor of *valuation-based systems*, an abstract framework for knowledge representation and inference that includes Bayesian probabilities, Dempster-Shafer belief functions, Spohn's kappa calculus, Zadeh's possibility theory, propositional logic, optimization, solving systems of equations, database retrieval, and other domains. He is also the co-author, with Glenn Shafer, of the so-called Shenoy-Shafer architecture for finding marginals of joint distributions using local computation. He has published several articles on managing uncertainty in expert systems, decision analysis, and the mathematical theory of games. His articles have appeared in *Operations Research*, *Management Science*, *International Journal of Game Theory*, *Artificial Intelligence*, and the *International Journal of Approximate Reasoning*. He has received several research grants/contracts from the Database and Expert Systems (DES), and Decision, Risk and Management Science (DRMS) programs of the *National Science Foundation*, the Research Opportunities in Auditing program of the *Peat Marwick Main Foundation*, the Higher Education Academic Development Donations program of *Apple Computer, Inc.*, the Information Sciences Department of *Hughes Research Laboratories*, *Space Dynamics Laboratory* of Utah State University, *Information Extraction and Transport, Inc.*, *Science Applications International Corp.*, *Sparta, Inc.*, *Raytheon Missile Systems*, Inc., *Lockheed Martin Space Systems Company*, and *American International Group, Inc.*

   He is an Associate Editor of the *International Journal of Approximate Reasoning* and an ad-hoc referee for over 30 journals and conferences in Artificial Intelligence and Management

Science/Operations Research. He has served as an Area Editor for the *International Journal of Fuzziness and Knowledge-Based Systems*, as an Associate Editor of *Operations Research*, as an Associate Editor of *Management Science*, as Program Co-Chair of the *Thirteenth Conference on Uncertainty in Artificial Intelligence* held at Brown University, Providence, 1997, and as Conference Chair of the *Fourteenth Conference on Uncertainty in Artificial Intelligence* held at the University of Wisconsin-Madison in 1998.

His teaching interests are uncertain reasoning, decision analysis, probability, and statistics. He has taught undergraduate and graduate courses on linear programming, non-linear programming, game theory, management information systems, decision support systems, uncertain reasoning, probability, statistics, multivariate statistics, supply chain modeling & optimization, and data analysis & forecasting. He has served on doctoral dissertation committees of forty Ph.D. students in Management Science, Marketing, Accounting, Economics, Electrical Engineering and Computer Science, Geography, Civil Engineering, and Philosophy, with twelve as chairpersons. He has received the Outstanding Mentor Award from the Association of Business Doctoral Students five times, an Excellence in Teaching Award from the Center for Teaching Excellence, and an Outstanding Mentor Award from the Graduate and Professional Association of the University of Kansas.

In the Summer of 2012, with the help of Dean Neeli Bendapudi and his colleagues in Decision Sciences, Marketing, and Finance, he formed the *Center for Business Analytics Research* (CBAR). In the Fall of 2013, DST Systems, Inc. joined CBAR as a founding corporate sponsor. In the Spring of 2015, AIG, Inc. joined CBAR as a corporate sponsor.

Education

Ph.D.	Cornell University, Ithaca, N.Y., 1977, in Operations Research (with minors in Computer Science and Statistics).
M.S.	Cornell University, Ithaca, N.Y., 1975, in Operations Research.
B.Tech.	Indian Institute of Technology, Bombay, 1973, in Mechanical Engineering.

Professional Education in Management Information Systems

Faculty Internship in Management Information Systems, Hallmark Cards, Inc., July 1–December 31, 1986.

Intra-University Visiting Professorship, Department of Computer Science, University of Kansas, August 1985–May 1986.

Information Systems Faculty Development Institute, American Association of Collegiate Schools of Business, and University of Minnesota, July 8–August 10, 1984.

Employment

Ronald G. Harper Distinguished Professor of Artificial Intelligence, University of Kansas School of Business, July 1994–August 2023.

Visiting Professor, Université de Technologie de Compiègne, France, January–May 2019.

Visiting Professor, Dept. of Statistics and Applied Mathematics, University of Almeria, Almeria, Spain, January–May 2011.

Visiting Professor, Dept. of Computer Science, Aalborg University, Denmark, January–May 2004.

Visiting Professor, University of Fribourg, Switzerland, January–May 1996.

Director of the Doctoral Program in Business, University of Kansas School of Business, 1991–95

Professor of Business, University of Kansas School of Business, 1988–94

Associate Professor of Business, University of Kansas School of Business, 1982–88

Assistant Professor of Business, University of Kansas School of Business, 1978–82

Research Scientist, Mathematics Research Center, University of Wisconsin at Madison, 1977–1978

Honors and Awards

Mentor Award, Association of Business Doctoral Students, School of Business, University of Kansas, 2009.

Member of Phi Beta Kappa, Alpha chapter of Kansas, University of Kansas, "in recognition of high attainments of liberal scholarship," 2007.

Guy O. and Rosa Lee Mabry Best Research Paper Award, School of Business, University of Kansas, 2007.

Mentor Award, Association of Business Doctoral Students, School of Business, University of Kansas, "for his distinguished service as a mentor for all doctoral students," 2007.

Guy O. and Rosa Lee Mabry Best Research Paper Award, School of Business, University of Kansas, 2005.

Outstanding Mentor Award, Graduate & Professional Association, University of Kansas, 2003

Guy O. and Rosa Lee Mabry Research Fellow Award, School of Business, University of Kansas, 2001.

Excellence in Teaching, KU Center for Teaching Excellence, 1998.

Outstanding Mentor Award, Association of Business Doctoral Students, University of Kansas, 1995.

Guy O. and Rosa Lee Mabry Research Fellow Award, School of Business, University of Kansas, 1998.

Mentor Award, Association of Business Doctoral Students, University of Kansas, 1994

Guy O. and Rosa Lee Mabry Research Fellow Award, School of Business, University of Kansas, Spring 1994.

Executive Education Research Fellow Award, School of Business, University of Kansas, 1993–94

Mentor Award, Association of Business Doctoral Students, University of Kansas, 1991

Joyce C. Hall Faculty Scholar, School of Business, University of Kansas, 1983–1985

Graduate School Fellowship, Cornell University, 1976–1977

Teaching Assistantship, School of Operations Research and Industrial Engineering, Cornell University, 1973–1976

Areas of Research Interest

Uncertainty in Artificial Intelligence

Knowledge-based Systems

Decision Analysis

Game Theory

Funded Research Grants

KU Hospital, "A Refresh of the Model for Estimating Supplemental Security Income Fraction for 340B Drug Pricing Program Qualification," $49,000, October–November 2018.

Lockheed Martin Space Systems Company, "Belief Function Models for Space Situational Awareness," $19,920, January–December 2018.

Lockheed Martin Space Systems Company, "Belief Function Models for Space Situational Awareness," $18,398, June–December 2017.

Honeywell Federal Manufacturing & Technologies, "Reducing Error in Purchase Order Forecasting Using Individualized Vendor Performance Models," $119,993.00, June— December 2017

Lockheed Martin Space Systems Company, "Measuring Information Quality in Multi-Sensor Data Fusion Applications," $24,675, June–September 2015.

American International Group, Inc., "Predicting Probabilities of Dismissal of 10b-5 Securities Class Action Cases," $125,000, April–September 2015, with Steve Hillmer as co-PI.

KU Hospital, "A Model for Estimating Supplemental Security Income Fraction for 340B Drug Pricing Program Qualification," $50,000, June–September 2014.

Lockheed Martin Space Systems Company, "A Principled Approach to Fusion and Inference Using the Valuation-based Systems Framework," $63,181, November 2013–August 2014.

Raytheon Missile Systems, "Information Fusion," $50,027, August–December 2007.

Raytheon Missile Systems, "Belief Function Machine," $45,053, January–June 2003.

Raytheon Missile Systems, "The Belief Machine: A MATLAB Environment for Belief Function Reasoning," $80,447, January–December 2002.

HRL Laboratories, "Decision Networks," $20,000, 1999.

Hughes Research Laboratories, "Multi-Sensor Fusion," $35,000, 1996.

Hughes Research Laboratories, "Multi-Sensor Fusion," $20,000, 1995.

University of Kansas General Research Fund, "A Decision Calculus for Spohn's Theory of Epistemic Beliefs," $4,500, 1994–95.

National Science Foundation, Decision, Risk and Management Science Program, # SES-9213558, "Valuation-Based Systems for Decision Analysis," $50,000, 1992–93.

University of Kansas General Research Fund and *School of Business Research Fund*, "A Qualitative Uncertainty Calculus," $10,762, 1992–93.

National Science Foundation, Research Experiences for Undergraduates program, "Belief Functions in Artificial Intelligence," $4,000, 1990–91.

Apple Computer, Inc., Higher Education Academic Development Donations program, #Q290-039, "MacEvidence: A Visual Evidential Language for Building Expert Systems," $12,437, 1990.

National Science Foundation, Database and Expert Systems program, # IRI-8902444, "Belief Functions in Artificial Intelligence," $181,715, 1989–91, with G. Shafer.

Peat Marwick Main Foundation, Research Opportunities in Auditing program, #88-146, "Auditor's Assistant: A Graphical Language for Expert Systems for Auditing," $39,980, 1989–90, with G. Shafer and R. Srivastava.

Peat Marwick Main Foundation, Research Opportunities in Auditing program, #87-135, "Auditor's Assistant: An Interactive System for Organizing and Evaluating Audit Judgments," $39,499, 1988–89, with G. Shafer and R. Srivastava.

National Science Foundation, Database and Expert Systems program, #IRI-8610293, "Belief Functions in Artificial Intelligence," $247,862, 1986–89, with G. Shafer.

Peat Marwick Main Foundation, Research Opportunities in Auditing program, #85-180, "An Interactive Tool for Managing Uncertainty in Expert Systems for Auditing," $36,663, 1986–87, with G. Shafer and R. Srivastava.

University of Kansas General Research Fund and *School of Business Research Fund*, "A Competitive Economic Order Quantity Model," $5,802, 1984–85.

University of Kansas General Research Fund and *School of Business Research Fund*, "On Rawlsian Economic Justice," $4,623, 1981–82.

University of Kansas General Research Fund and *School of Business Research Fund*, "Measuring Power in Voting Systems," $4,615, 1980–81.

University of Kansas General Research Fund and *School of Business Research Fund*, "Group Decision Making Schemes," $3,031, 1979–80.

Papers in Refereed Journals

1. Tan, Y., B. Sherwood, & P. P. Shenoy, "A naïve Bayes regularized logistic regression estimator for low-dimensional classification," *International Journal of Approximate Reasoning*, **172**(9), 2024, 109239. PDF DOI

2. Tan, Y., P. P. Shenoy, B. Sherwood, C. Shenoy, M. Gaddy, & M. E. Oehlert, "Bayesian network models for PTSD screening in veterans," *INFORMS Journal on Computing*, 2023, **36**(2), 495–509. PDF DOI

3. Jiroušek, R., V. Kratochvìl, & P. P. Shenoy, "Computing the decomposable entropy of belief-function graphical models," *International Journal of Approximate Reasoning*, **161**(10), 2023, 108984. PDF DOI

4. Shenoy, P. P., "Making inferences in incomplete Bayesian networks: A Dempster-Shafer belief function approach," *International Journal of Approximate Reasoning*, **160**(9), 2023, 108967. PDF DOI

5. Jiroušek, R., V. Kratochvìl, & P. P. Shenoy, "On conditional belief functions in directed graphical models in the Dempster-Shafer theory," *International Journal of Approximate Reasoning*, **160**(7), 2023, 108976. PDF DOI

6. Denœux, T. & P. P. Shenoy, "An interval-valued utility theory for decision making with Dempster-Shafer belief functions," *International Journal of Approximate Reasoning*, **124**(9), 2020, 194–216. PDF DOI

7. Jiroušek, R. & P. P. Shenoy, "On properties of a new decomposable entropy of Dempster-Shafer belief functions," *International Journal of Approximate Reasoning*, **119**(4), 2020, 260–279. PDF DOI

8. Tan, Y. & P. P. Shenoy, "A bias-variance based heuristic for constructing a hybrid logistic regression-naïve Bayes model for classification," *International Journal of Approximate Reasoning*, **117**(2), 2020, 15–28. PDF DOI

9. Shenoy, P. P., "An expectation operator for belief functions in the Dempster-Shafer theory," *International Journal of General Systems*, **49**(1), 2020, 112–141. PDF DOI

10. Jaunzemis, A. D., M. J. Holzinger, M. W. Chan, & P. P. Shenoy, "Evidence gathering for hypothesis resolution using judicial evidential reasoning," *Information Fusion*, **49**(9), 2019, 26–45. PDF DOI

11. Singha, S. & P. P. Shenoy, "An adaptive heuristic for feature selection based on complementarity," *Machine Learning*, **107**(12), 2018, 2027–2071. PDF DOI

12. Jiroušek, R. & P. P. Shenoy, "A new definition of entropy of belief functions in the Dempster-Shafer theory," *International Journal of Approximate Reasoning*, **92**(1), 2018, 49–65. PDF DOI

13. Cobb, B. R. & P. P. Shenoy, "Inference in hybrid Bayesian networks with nonlinear deterministic conditionals," *International Journal of Intelligent Systems*, **32**(12), 2017, 1217–1246. PDF DOI

14. Singha, S., S. Hillmer, & P. P. Shenoy, "On computing probabilities of dismissal of 10b-5 securities class-action cases," *Decision Support Systems*, **94**(2), 2017, 29–41. PDF DOI

15. Cinicioglu, E. N. & P. P. Shenoy, "A new heuristic for learning Bayesian networks from limited datasets: A real-time recommendation system application with RFID system in grocery stores," *Annals of Operations Research*, **244**(2), 2016, 385–405. PDF DOI

16. Jiroušek, R. & P. P. Shenoy, "Causal compositional models in valuation-based systems with examples in specific theories," *International Journal of Approximate Reasoning*, **72**(1), 2016, 95–112. PDF DOI

17. Shenoy, P. P., R. Rumí & A. Salmerón "Practical aspects of solving hybrid Bayesian networks containing deterministic conditionals," *International Journal of Intelligent Systems*, **30**(3), 2015, 265–291. PDF DOI

18. Jiroušek, R. & P. P. Shenoy, "Compositional models in valuation-based systems," *International Journal of Approximate Reasoning*, **55**(1), 2014, 277–293. PDF DOI

19. Shenoy, P. P. "Two issues in using mixtures of polynomials for inference in hybrid Bayesian networks," *International Journal of Approximate Reasoning*, **53**(5), 2012, 847–866. PDF DOI

20. Li, Yi & P. P. Shenoy, "A framework for solving hybrid influence diagrams containing deterministic conditional distributions," *Decision Analysis*, **9**(1), 2012, 55–75. PDF DOI

21. Shenoy, P. P. & J. C. West, "Extended Shenoy-Shafer architecture for inference in hybrid Bayesian networks with deterministic conditionals," *International Journal of Approximate Reasoning*, **52**(6), 2011, 805–818. PDF DOI

22. Shenoy, P. P. & J. C. West, "Inference in hybrid Bayesian networks using mixtures of polynomials," *International Journal of Approximate Reasoning*, **52**(5), 2011, 641–657. PDF DOI

23. Giang, P. H. & P. P. Shenoy, "A decision theory for partially consonant belief functions," *International Journal of Approximate Reasoning*, **52**(3), 2011, 375–394. PDF DOI

24. Bielza, C., M. Gomez, & P. P. Shenoy, "A review of representation issues and modeling challenges with influence diagrams," *Omega*: *International Journal of Management Science*, **39**(3), 2011, 227–241. PDF DOI

25. Bielza, C., M. Gomez, & P. P. Shenoy, "Modeling challenges with influence diagrams: Constructing probability and utility models," *Decision Support Systems*, **49**(4), 2010, 354–364. PDF DOI

26. Cinicioglu, E. N. & P. P. Shenoy, "Arc reversals in hybrid Bayesian networks with deterministic variables," *International Journal of Approximate Reasoning*, **50**(5), 2009, 763–777. PDF DOI

27. Cobb, B. R. & P. P. Shenoy, "Decision making with hybrid influence diagrams using mixtures of truncated exponentials," *European Journal of Operational Research*, **186**(1), 2008, 261–275. PDF DOI

28. Sun, L. & P. P. Shenoy, "Using Bayesian networks for bankruptcy prediction in stressed firms: Some methodological issues," *European Journal of Operational Research*, **180**(2), 2007, 738–753. PDF DOI

29. Liu, L., C. Shenoy, & P. P. Shenoy, "Knowledge representation and integration for portfolio evaluation using linear belief functions," *IEEE Transactions on Systems, Man, and Cybernetics*, *Part A: Systems and Humans*, **36**(4), 2006, 774–785. PDF DOI

30. Cobb, B. R., P. P. Shenoy, & R. Rumi, "Approximating probability density functions with mixtures of truncated exponentials," *Statistics & Computing*, **16**(3), 2006, 293–308. PDF DOI

31. Jensen, F. V., T. D. Nielsen, & P. P. Shenoy, "Sequential influence diagrams: A unified asymmetry framework," *International Journal of Approximate Reasoning*, **42**(1–2), 2006, 101–118. PDF DOI

32. Cobb, B. R. & P. P. Shenoy, "Operations for inference in continuous Bayesian networks with linear deterministic variables," *International Journal of Approximate Reasoning*, **42**(1–2), 2006, 21–36. PDF DOI

33. Cobb, B. R. & P. P. Shenoy, "On the plausibility transformation method for translating belief function models to probability models," *International Journal of Approximate Reasoning*, **41**(3), 2006, 314–340. PDF DOI

34. Cobb, B. R. & P. P. Shenoy, "Inference in hybrid Bayesian networks with mixtures of truncated exponentials," *International Journal of Approximate Reasoning*, **41**(3), 2006, 257–286. PDF DOI

35. Demirer, R. & P. P. Shenoy, "Sequential valuation networks and asymmetric decision problems," *European Journal of Operational Research*, **169**(1), 2006, 286–309. PDF DOI

36. Giang, P. H., & P. P. Shenoy, "Decision making on the sole basis of likelihood," *Artificial Intelligence*, **165**(2), 2005, 137–163. PDF DOI

37. Giang, P. H., & P. P. Shenoy, "Two axiomatic approaches to decision making using possibility theory," *European Journal of Operational Research*, **162**(2), 2005, 450–467. PDF DOI

38. Nadkarni, S. & P. P. Shenoy, "A causal mapping approach to constructing Bayesian networks," *Decision Support Systems*, **38**(2), 2004, 259–281. PDF DOI

39. Liu, L., & P. P. Shenoy, "Representing asymmetric decision problems using coarse valuations," *Decision Support Systems*, **37**(1), 2004, 119–135. PDF DOI

40. Charnes, J. M. & P. P. Shenoy, "Multistage Monte Carlo method for solving influence diagrams using local computation," *Management Science*, **50**(3), 2004, 405–418. PDF DOI

41. Cobb, B. R. & P. P. Shenoy, "A comparison of Bayesian and belief function reasoning," *Information Systems Frontiers*, **5**(4), 2003, 345–358. PDF DOI

42. Nadkarni, S. & P. P. Shenoy, "A Bayesian network approach to making inferences in causal maps," *European Journal of Operational Research*, **128**(3), 2001, 479–498. PDF DOI

43. Shenoy, P. P., "Valuation network representation and solution of asymmetric decision problems," *European Journal of Operational Research*, **121**(3), 2000, 579–608. PDF DOI

44. Bielza, C. & P. P. Shenoy, "A comparison of graphical techniques for asymmetric decision problems," *Management Science*, **45**(11), 1999, 1552–1569. PDF DOI

45. Schmidt, T. & P. P. Shenoy, "Some improvements to the Shenoy-Shafer and Hugin architectures for computing marginals," *Artificial Intelligence*, **102**(2), 1998, 323–333. PDF DOI

46. Shenoy, P. P., "Game trees for decision analysis," *Theory and Decision*, **44**(2), 1998, 149–171. PDF DOI

47. Shenoy, P. P., "Binary join trees for computing marginals in the Shenoy-Shafer architecture," *International Journal of Approximate Reasoning*, **17**(2–3), 1997, 239–263. PDF DOI

48. Guo, R. & P. P. Shenoy, "A note on Kirkwood's algebraic method for decision problems," *European Journal of Operational Research*, **93**(3), 1996, 628–638. PDF DOI

49. Srivastava, R. P., P. P. Shenoy, & G. Shafer, "Propagating belief functions in and-trees," *International Journal of Intelligent Systems*, **10**(7), 1995, 647–664. PDF DOI

50. Liu, L. & P. P. Shenoy, "A theory of coarse utility," *Journal of Risk and Uncertainty*, **11**(1), 1995, 17–49. PDF DOI

51. Shenoy, P. P., "Consistency in valuation-based systems," *ORSA Journal on Computing*, **6**(3), 1994, 281–291. PDF DOI

52. Shenoy, P. P., "A comparison of graphical techniques for decision analysis," *European Journal of Operational Research*, **78**(1), 1994, 1–21. PDF DOI

53. Shenoy, P. P., "Representing conditional independence relations by valuation networks," *International Journal of Uncertainty, Fuzziness & Knowledge-Based Systems*, **2**(2), 1994, 143–165. PDF DOI

54. Shenoy, P. P., "Conditional independence in valuation-based systems," *International Journal of Approximate Reasoning*, **10**(3), 1994, 203–234. PDF DOI

55. Shenoy, P. P., "Using possibility theory in expert systems," *Fuzzy Sets and Systems*, **52**(2), 1992, 129–142. PDF DOI

56. Shenoy, P. P., "Valuation-based systems for Bayesian decision analysis," *Operations Research*, **40**(3), 1992, 463–484. PDF DOI

57. Shenoy, P. P., "On Spohn's rule for revision of beliefs," *International Journal of Approximate Reasoning*, **5**(2), 1991, 149–181. PDF DOI

58. Shafer, G. R. & P. P. Shenoy, "Probability propagation," *Annals of Mathematics and Artificial Intelligence*, **2**(1–4), 1990, 327–351. PDF DOI

59. Shenoy, P. P., "A valuation-based language for expert systems," *International Journal of Approximate Reasoning*, **3**(2), 1989, 383–411. PDF DOI

60. Cohen, P., G. Shafer, & P. P. Shenoy, "Modifiable combining functions," *Artificial Intelligence for Engineering Design, Analysis, and Manufacturing*, **1**(1), 1987, 47–57. DOI PDF

61. Shafer, G., P. P. Shenoy, & K. Mellouli, "Propagating belief functions in qualitative Markov trees," *International Journal of Approximate Reasoning*, **1**(4), 1987, 349–400. PDF DOI

62. Shenoy, P. P., "Competitive inventory models," *RAIRO—Operations Research*, **21**(1), 1987, 1–19. PDF

63. Shenoy, P. P. & G. Shafer, "Propagating belief functions with local computations," *IEEE Expert*, **1**(3), 1986, 43–52. PDF DOI

64. Shenoy, P. P. & R. Martin, "Two interpretations of the difference principle in Rawls' theory of justice," *Theoria*, **49**(3), 1983, 113–141. PDF DOI

65. Shenoy, P. P., "The Banzhaf power index for political games," *Mathematical Social Sciences*, **2**(3), 1982, 299–315. PDF DOI

66. Shenoy, P. P., "A solution for non-cooperative games," *Journal of Optimization Theory and Applications*, **38**(4), 1982, 565–579. DOI

67. Shenoy, P. P., and P.-L. Yu, "Inducing cooperation by reciprocative strategy in non-zero-sum games," *Journal of Mathematical Analysis & Applications*, **80**(1), 1981, 67–77. PDF DOI

68. Shenoy, P. P., "A 3-person cooperative game model of the world oil market," *Applied Mathematical Modeling*, **4**(4), 1980, 301–307. PDF DOI

69. Shenoy, P. P., "A 2-person non-zero-sum game model of the world oil market," *Applied Mathematical Modeling*, **4**(4), 1980, 295–300. PDF DOI

70. Shenoy, P. P., "A dynamic solution concept for abstract games," *Journal of Optimization Theory and Applications*, **32**(2), 1980, 151–169. DOI

71. Shenoy, P. P., "On committee decision making: A game-theoretical approach," *Management Science*, **26**(4), 1980, 387–400. PDF DOI

72. Shenoy, P. P., "On coalition formation: A game-theoretical approach," *International Journal of Game Theory*, **8**(3), 1979, 133–164. PDF DOI

73. Shenoy, P. P., "On coalition formation in simple games: A mathematical analysis of Caplow's and Gamson's theories," *Journal of Mathematical Psychology*, **18**(2), 1978, 177–194. PDF DOI

Refereed Papers in Edited Books

1. Shenoy, P. P., "Mutual information and Kullback-Leibler divergence in the Dempster-Shafer theory," in Y. Bi, A.-L. Jousselme, and T. Denœux (eds.), *Belief Functions: Theory and Applications: 8th International Conference, BELIEF-2024*, Lecture Notes in Artificial Intelligence, Vol. 14909, 2024, 225–233, Springer Nature, Cham. PDF DOI

2. Jiroušek, R., V. Kratochvìl, & P. P. Shenoy, "On the relationship between graphical and compositional models for the Dempster-Shafer theory of belief functions," in E. Miranda, I. Montes, E. Quaeghebeur, and B. Vantaggi (eds.), *Proceedings of the 13th International Symposium on Imprecise Probability: Theories and Applications (ISIPTA-23)*, Proceedings of Machine Learning Research (PMLR), 215, 259–269, 2023, MLR Press. PDF WWW

3. Shenoy, P. P., "On distinct belief functions in the Dempster-Shafer theory," in E. Miranda, I. Montes, E. Quaeghebeur, and B. Vantaggi (eds.), *Proceedings of the 13th International Symposium on Imprecise Probability: Theories and Applications* (*ISIPTA*-23), Proceedings of Machine Learning Research (PMLR), Vol. 215, 426–437, 2023, MLR Press. PDF WWW

4. Jiroušek, R., V. Kratochvìl, & P. P. Shenoy, "Entropy-based learning of compositional models from data" in T. Denœux, E. Lefèvre, Z. Liu, & F. Pichon (eds.), *Belief Functions: Theory and Applications, Proceedings of the 6th International Conference*, *BELIEF* 2021, Lecture Notes in Artificial Intelligence, Vol. 12915, 117–126, 2021, Springer Nature, Switzerland. PDF DOI

5. Denœux, T. & P. P. Shenoy, "An axiomatic utility theory for Dempster-Shafer belief functions," in J. de Bock, C. P. de Campos, G. de Cooman, E. Quaeghebeur, & G. Wheeler (eds.), *Proceedings of the* 2019 *International Symposium on Imprecise Probabilities: Theory and Applications* (ISIPTA-19), *Proceedings of Machine Learning Research*, Vol. 103, 2019, 145–155, MLR Press. PDF WWW

6. Jiroušek, R. & P. P. Shenoy, "Combination and composition in probabilistic models" in L. H. Ahn, L. S. Dong, V. Kreinovich, & N. N. Thach (eds.), *Econometrics for Financial Applications: ECONVN 2018 Conference Proceedings*, Studies in Computational Intelligence, Vol. 760, 2018, 120–133, Springer, Cham. PDF DOI

7. Jiroušek, R. & P. P. Shenoy, "A decomposable entropy of belief functions in the Dempster-Shafer theory," in S. Destercke, T. Denœux, F. Cuzzolin, & A. Martin (eds.), *Belief Functions: Theory and Applications*, *Proceedings of the 5th International Conference*, *BELIEF 2018*, Lecture Notes in Artificial Intelligence, Vol. 11069, 2018, 146–154, Springer Nature, Switzerland. PDF DOI

8. Tan, Y., P. P. Shenoy, M. W. Chan, & P. M. Romberg, "On construction of hybrid logistic regression-naïve Bayes model for classification," in A. Antonucci, G. Corani, & C. P. de Campos (eds.), *Proceedings of Machine Learning Research*, Vol. 52: Conference on Probabilistic Graphical Models, 6–9 September 2016, Lugano, Switzerland, 523–534. PDF WWW

9. Jiroušek, R. & P. P. Shenoy, "Entropy of belief functions in the Dempster-Shafer theory: A new perspective," in J. Vejnarová & V. Kratochvíl (eds.), *Belief Functions: Theory and Applications*, *Proceedings of the 4th International Conference BELIEF-2016*, Lecture Notes in Artificial Intelligence, Vol. 9861, 2016, 1–11, Springer International Publishing, Switzerland. PDF DOI

10. Jiroušek, R. & P. P. Shenoy, "Causal compositional models in valuation-based systems," in F. Cuzzolin (ed.), *Belief Functions: Theory and Applications*, *Proceedings of the 3rd International Conference BELIEF-2014*, Lecture Notes in Artificial Intelligence, Vol. 8764, 2014, 256–264, Springer, Switzerland. PDF DOI

11. Jiroušek, R. & P. P. Shenoy, "Conditioning in decomposable compositional models in valuation-based systems," in S. Greco, B. Bouchon-Meunier, G. Coletti, M. Fedrizzi, B. Matarazzo, & R. Yager (eds.), *Advances in Computational Intelligence*: *Proceedings of the International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems IPMU 2012*, Lecture Notes in Computer Science 300, Part IV, 2012, 676–685, Springer-Verlag, Berlin. PDF DOI

12. Jiroušek, R. & P. P. Shenoy, "Compositional models in valuation-based systems," in T. Denœux and M.-H. Masson (eds.), *Belief Functions: Theory and Applications*, Advances in Intelligent and Soft Computing, Vol. 164, 2012, 221–228, Springer, Heidelberg. PDF DOI

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36. Shenoy, P. P., "Representing and solving asymmetric decision problems using valuation networks," in D. Fisher & H.-J. Lenz (eds.), *Learning from Data: Artificial Intelligence and Statistics V*, Lecture Notes in Statistics, Vol. 112, 1996, 99–108. Springer-Verlag, Berlin. PDF DOI

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2. Shenoy, P. P., "An expectation operator for belief Functions in the Dempster-Shafer theory," in V. Kratochvíl & J. Vejnarová (eds.), *Proceedings of the 11th Workshop on Uncertainty Processing* (WUPES-18), 2018, 165–176, Matfyz Press, Prague, Czech Republic. PDF

3. Jiroušek, R. & P. P. Shenoy, "Ambiguity aversion and a decision-theoretic framework using belief functions," in *2017 IEEE Symposium Series on Computational Intelligence* (*SSCI*) *Proceedings*, 2017, 326–332, IEEE, Piscataway, NJ. PDF

4. Jaunzemis, A.D., D. Minotra, M. J. Holzinger, K. M. Feigh, M. W. Chan, & P. P. Shenoy, "Judicial evidential reasoning for decision support applied to orbit insertion failure," in *First International Academy of Astronautics* (IIA) *Conference on Space Situational Awareness*, 2017. PDF

5. Cobb, B. R. & P. P. Shenoy, "Piecewise linear approximations of nonlinear deterministic conditionals in continuous Bayesian networks," in A. Cano, M. Gómez-Olmedo, & T. D. Nielsen (eds.), *Proceedings of the 6th European Workshop on Probabilistic Graphical Models* (*PGM*-12), 2012, 59–66, DECSAI, University of Granada, Spain. PDF

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7. Shenoy, P. P., R. Rumí & A. Salmerón, "Some practical issues in inference in hybrid Bayesian networks with deterministic conditionals," in S. Ventura, A. Abraham, K. Cios, C. Romero, F. Marcelloni, J. M. Benitez, & E. Gibaja (eds.), *Proceedings of the 2011 Eleventh International Conference on Intelligent Systems Design and Applications* (*ISDA*-11), 2011, 605–610, IEEE Research Publishing Services, Piscataway, NJ. PDF DOI

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Unpublished Working Papers

Shenoy, P. P. and V. Kratochvíl, "Mutual information and Kullback-Leibler divergence in the Dempster-Shafer theory of belief functions," Working Paper No. 345, July 2025, School of Business, University of Kansas. PDF

Shenoy, P. P.,"On distinct belief functions in the Dempster-Shafer theory," Working Paper No. 344, February 2023, Revised July 2025, School of Business, University of Kansas. PDF

Hillmer, S. & P. P. Shenoy, "A model for estimating Medicare/supplemental security income fraction for 340B program qualification," Working Paper No. 331, August 2014, revised January 2016, School of Business, University of Kansas. PDF

Shenoy, P. P., "Representing piecewise functions in Mathematica$^{©}$, Working Paper No. 324, March 2011, School of Business, University of Kansas. PDF

Cobb, B. R. & P. P. Shenoy, "On transformations of belief function models to probability models," Working Paper 293, July 2003, School of Business, University of Kansas. PDF

Kemmerer, B., S. Mishra, & P. P. Shenoy, "Bayesian causal maps as decision Aids in Venture Capital Decision Making," Working Paper No. 291, January 2002, School of Business, University of Kansas. PDF

Lander, D. & P. P. Shenoy, "Modeling and valuing real options using influence diagrams," Working Paper No. 283, June 1999, School of Business, University of Kansas. [PDF]

Shafer, G. & P. P. Shenoy, "Local computation in hypertrees," Working Paper No. 201, August 1988, School of Business, University of Kansas. [PDF]

Areas of Teaching Interest

Uncertainty in Artificial Intelligence

Decision Analysis and Game Theory

Probability and Statistics

Dissertations Chaired

Ph.D., Yi Tan, 2020, "New Probabilistic Techniques for Classification Problems and an Application"

Ph.D., Sumanta Singha, 2018, "Three Essays on Feature and Model Selection for Classification and Regression Problems"

Ph.D., Esma Nur Cinicioglu, 2008, "On Solving Stochastic PERT Networks and Using RFIDs for Operations Management"

Ph.D., Mohammad Mahboob Rahman, 2006, "Essays Analyzing Blogs and Wikipedia"

Ph.D., Barry R. Cobb, 2005, "Inference and Decision Making in Hybrid Bayesian Networks"

Ph.D., Saverio Manago, 2005, "Knowledge-Based Bayesian Networks for Discriminant Analysis"

Ph.D., Phan Hong Giang, 2003, "A Decision Theory for Non-Probabilistic Uncertainty and Its Applications"

Ph.D., Sucheta Nadkarni, 2000, "Industry Clock Speed and Evolution of Cognitive Maps"

Ph.D., Diane Lander, 1997, "Real Options Valuation: An Uncertain Reasoning Approach"

Ph.D., Liping Liu, 1995, "A Theory of Coarse Utility and Its Application to Portfolio Analysis"

Ph.D., Ali Jenzarli, 1995, "Modeling Dependence in Project Management"

Ph.D., Khaled Mellouli, 1987, "On the Propagation of Beliefs in Networks using the Dempster-Shafer Theory of Evidence."

M.S., John G. McManus, 1986, "A Line Search Method and Other Modifications for Improving the Efficiency of the Nonlinear Simplex Method"

Presentations at Professional Meetings (*January 2008 onwards*)

Seventh School on Belief Functions and their Applications, University of Granada, Spain, October 2025, invited lecturer.

Alšovice 2025 Workshop, Czech Academy of Sciences, June 2025, invited speaker.

Seventh International Conference on Belief Functions (Belief-2024), Ulster University, Northern Ireland, October 2024, invited speaker.

Sixth School on Belief Functions and their Applications, Japan Advanced Institute of Science and Technology, Ishikawa, Japan, November 2023, invited lecturer.

Thirteenth International Symposium on Imprecise Probabilities: Theories and Applications (ISIPTA-2023), Oviedo, Spain, July 2023.

Eleventh International Conference on Probabilistic Graphical Models (PGM-2022), Almeria, Spain, October 2022, invited speaker.

Fifth School on Belief Functions and their Applications, La Certosa di Pontignano, Siena, Italy, October 2019, invited lecturer.

Eleventh International Symposium on Imprecise Probabilities: Theory and Applications (ISIPTA-2019), Ghent, Belgium, July 2019.

Fifth International Conference on Belief Functions (Belief-2018), Compiègne, France, September 2018.

Twenty-First International Conference on Information Fusion (FUSION-2018), Cambridge, UK, July 2018.

Eleventh Workshop on Uncertainty Processing (WUPES-2018), Třeboň, Czech Republic, June 2018.

Fourth School on Belief Functions and their Applications, Xi'an, China, July 2017, invited lecturer.

Fourth International Conference on Belief Functions (Belief-2016), Prague, Czech Republic, September 2016.

Third School on Belief Functions and their Applications, Stella Plage, France, October 2015, invited lecturer.

INFORMS National Meeting, San Francisco, CA, November 2014.

Third International Conference on Belief Functions (Belief-2014), Oxford, UK, September 2014.

Sixth European Workshop on Probabilistic Graphical Models (PGM-2012), Granada, Spain, September 2012.

Ninth Workshop on Uncertainty Processing (WUPES-2012), Mariánské Lázně, Czech Republic, September 2012.

Second International Conference on Belief Functions (Belief-2012), Compiegne, France, May 2012, invited presentation.

Eleventh European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU-2011), Belfast, Northern Ireland, UK, June 2011.

First Spring School on Belief Functions and Their Applications, Autrans, France, April 2011.

INFORMS National Meeting, Austin, TX, November 2010.

Twenty-Sixth Conference on Uncertainty in Artificial Intelligence, Avalon, CA, July 2010.

Eighth Workshop on Uncertainty Processing (WUPES-2009), Liblice, Czech Republic, September 2009.

Tenth European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU-2009), Verona, Italy, July 2009.

INFORMS National Meeting, Washington, DC, October 2008.

Administrative Service, 2008–onwards

- Search Committee for two faculty positions in Business Analytics, 2019–20.

- Search Committee for a faculty position in Business Analytics, 2018–19.

- Search Committee for a faculty position in Business Analytics, 2017–18.

- Strategic Planning Coordination Committee, 2017–18.

- Director, Center for Business Analytics Research, June 2012 onwards

- School of Business Ph.D. Team, Fall 2011 onwards.

- School of Business Research Evaluation and Development (RED) Team, elected, 2011–14, 2015–18, 2019–22.

- Member of Strategic Initiative Theme 4: Harnessing Information, Multiplying Knowledge

- Search Committee for Asst. Prof. position in Supply Chain Management, 2010–11.

- Search Committee for Asst. Prof. position in Supply Chain Management, 2008–09.

- School of Business Research Evaluation and Development Team, elected, 2007–08, 2008–09.

- University of Kansas Faculty Senate Executive Committee (FacEx), elected, 2007–08

- University of Kansas Faculty Senate, elected, 2005–06, 2006–07, 2007-08

Editorial Service (2008 onwards)

Chair of the Board for

- Association for Uncertainty in Artificial Intelligence (AUAI), August 2012—July 2014.

Treasurer for:

- Association for Uncertainty in Artificial Intelligence (AUAI), August 2010—2012.

Associate Editor for:

- International Journal of Approximate Reasoning, North-Holland, Amsterdam, 1990–present.

Editorial Board Member of

- International Journal of Uncertainty, Fuzziness, and Knowledge-Based Systems, 2005–present.

- International Journal of Information Technology and Decision Making, World Scientific Press, 2002–present.

Program Committees Member of:

- 6th International Conference on Belief Functions (BELIEF-2021), Shanghai, China, October 2021.

- 12th International Symposium on Imprecise Probability: Theories and Applications (ISIPTA-2021), Granada, Spain, July 2021.

- 12th Workshop on Uncertainty Processing (WUPES-2021), Kutná Hora, Czech Republic, June 2021.

- 10th International Conference on Probabilistic Graphical Models (PGM-2020), Aalborg, Denmark, September 2020.

- 11th International Symposium on Imprecise Probabilities: Theory and Applications (ISIPTA-2019), Ghent, Belgium, July 2019.

- 11th Workshop on Uncertainty Processing (WUPES-2018), Třeboň, Czech Republic, June 2018.

- 9th International Conference on Probabilistic Graphical Models (PGM-18), Prague, Czech Republic, September 2018.

- 5th International Conference on Belief Functions (Belief-2018), Compiegne, France, September 2018.

- 4th International Conference on Belief Functions (Belief-2016), Prague, Czech Republic, September 2016.

- 8th International Conference on Probabilistic Graphical Models (PGM-16), Lugano, Switzerland, September 2016.

- 32nd Conference on Uncertainty in Artificial Intelligence (UAI-16), New York City, NY, June 2016 (Senior Program Committee).

- 31st Conference on Uncertainty in Artificial Intelligence (UAI-15), Amsterdam, Netherlands, July 2015 (Senior Program Committee).

- 3rd International Conference on Belief Functions (Belief-2014), Oxford, UK, September 2014.

- 30th Conference on Uncertainty in Artificial Intelligence (UAI-14), Quebec City, Quebec, CA, July 2014 (Senior Program Committee).

- 29th Conference on Uncertainty in Artificial Intelligence (UAI-13), Bellevue, WA, August 2013 (Senior Program Committee).

- 8th International Symposium on Imprecise Probabilities (ISIPTA-13), Compiegne, France, July 2013.

- 7th International Conference on Scalable Uncertainty Management (SUM-13), Washington, DC, April 2013.

- 6th European Workshop on Probabilistic Graphical Models (PGM-12), Granada, Spain, September 2012.

- 6th International Conference on Scalable Uncertainty Management (SUM-12), Marburg, Germany, September 2012.

- 28th Conference on Uncertainty in Artificial Intelligence (UAI-12), Avalon, CA, August 2012 (Senior Program Committee).

- 13th International Conference on Principles of Knowledge Representation and Reasoning (KR-12), Rome, Italy, June 2012.

- 2nd International Conference on Belief Functions (BELIEF-12), Compiegne, France, May 2012.

- 5th International Conference on Scalable Uncertainty Management (SUM-11), Dayton, OH, October 2011.

- 27th Conference on Uncertainty in Artificial Intelligence (UAI-11), Barcelona, Spain, July 2011 (Senior Program Committee).

- 11th European Conference of Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU-11), Belfast, UK, June 2011.

- 4th International Conference on Scalable Uncertainty Management (SUM-10), Toulouse, France, September 2010.

- 5th European Workshop on Probabilistic Graphical Models (PGM-10), Helsinki, Finland, September 2010.

- 19th European Conference on Artificial Intelligence (ECAI-10), Lisbon, Portugal, August 2010.

- 26th Conference on Uncertainty in Artificial Intelligence (UAI-10), Catalina Island, CA, July 2010 (Senior Program Committee).

- 13th International Conference on Information Processing and Management of Uncertainty in Knowledge-based Systems (IPMU-2010), Dortmund, Germany, June-July 2010.

- 1st Workshop on the Theory of Belief Functions, Brest, France, April 2010.

- 3rd International Conference on Scalable Uncertainty Management (SUM-09), Washington, DC, September 2009.

- 25th Conference on Uncertainty in Artificial Intelligence (UAI-09), Montreal, Canada, June 2009 (Senior Program Committee).

- 10th European Conference of Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU-09), Verona, Italy, July 2009.

- 24th Conference on Uncertainty in Artificial Intelligence (UAI-08), Helsinki, Finland, July 2008 (Senior Program Committee).

- 12th International Conference on Information Processing and Management of Uncertainty in Knowledge-based Systems (IPMU-08), Malaga, Spain, July 2008.

Ad-Hoc Referee for:

National Science Foundation (Economics; Decision, Risk and Management Science; Database and Expert Systems; Knowledge Models and Cognitive Systems, Robust Intelligence)
National Academy of Sciences/National Research Council
European Science Foundation College of Expert Reviewers
Natural Sciences and Engineering Research Council of Canada
Czech Republic Academy of Sciences
Decision Support Systems
European Journal of Operational Research
Statistical Science

Membership in Professional Societies
Institute of Operations Research and Management Sciences (INFORMS)
Decision Analysis Society (DAS)

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- Google Scholar: <http://scholar.google.com/citations?user=3r7dSLAAAAAJ&hl=en>

- LinkedIn: <http://www.linkedin.com/in/prakashpshenoy>

- Personal Homepage: <https://pshenoy.ku.edu/>

- KU Homepage: <https://business.ku.edu/people/prakash-p-shenoy>

- Publons: <https://publons.com/researcher/697854/prakash-p-shenoy/>

- Research Gate: <https://www.researchgate.net/profile/Prakash_Shenoy>

- arXiv: <http://arxiv.org/a/shenoy_p_2>