Sudha Ram

Anheuser-Busch Endowed Processor of MIS, Entrepreneurship & Innovation
Professor of Computer Science
Member, BIO5 Institute and Institute for Environment
Director, INSITE: Center for Business Intelligence and Analytics (www.insiteua.org)
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Education

1985: University of Illinois at Urbana-Champaign, Urbana, IL.
Ph.D., Management Information Systems

1981: Indian Institute of Management, Calcutta, India
MBA, emphasis in Management Information Systems

1979: University of Madras, India
BS, Chemistry (with Physics, Mathematics)

Employment

April 2013 – Present: Anheuser-Busch Endowed Chair Professor of MIS, Entrepreneurship & Innovation, University of Arizona.

February 2012 –Present: Director, INSITE: Center for Business Intelligence and Analytics, University of Arizona.

August 2006-2013: McClelland Professor of MIS, The University of Arizona, Tucson, AZ
Eller Professor, Department of Management Information Systems, Eller College of Management.

August 2008-Present: Professor of Computer Science, University of Arizona.

August 2007- Present: Member, Bio5 Institute University of Arizona.

August 2006 – Present: Member, Institute for the Environment, University of Arizona.

August 2001- 2006: Eller Professor of MIS, The University of Arizona, Tucson, AZ
Eller Professor, Department of Management Information Systems, Eller College of Management.

Aug. 1996 – 2001: Professor, The University of Arizona, Tucson, AZ
Eller Professor, Department of Management Information Systems, College of BPA

Aug. 1991 – Jul. 1996: The University of Arizona, Tucson, AZ
Associate Professor, Department of Management Information Systems, College of BPA

Aug. 1985 – Jul. 1991: The University of Arizona, Tucson, AZ
Assistant Professor, Department of Management Information Systems, College of BPA

1984 – 1985: University of Illinois at Urbana-Champaign, Illinois
Research Assistant, Department of Computer Science

1984 – 1985: University of Illinois at Urbana-Champaign, Illinois
Research Assistant, Department of Natural History

1982 – 1984: University of Illinois at Urbana-Champaign, Illinois
Research Assistant, Department of Planning and Budgeting

1983 – 1985: University of Illinois at Urbana-Champaign, Illinois
Teaching Assistant, College of Commerce and Business Administration

1981 – 1982: Tata Consultancy Services, Bombay, India
Assistant Systems Analyst

Research Interests

Big Data Analytics and Enterprise Data Management

Large Scale Network Science and Data Mining
Machine Learning
Semantic Interoperability among Heterogeneous Data Sources
Web and Big Data Analytics
Social Media Analytics
Enterprise Data Management

Honors and Awards

- University of Arizona Woman of Impact Award, 2023
- Best Paper nomination ISR, 2023
- INFORMS ISS Fellow Award, 2021
- AIS Distinguished Member cum Laude 2021
- Peter Chen Award 2021
- INFORMS Data Science Workshop Best Paper award 2021
- ICIS Conference Best paper award 2021
- Kalt Prize for Doctoral Placement, 2021
- ICIS Best Paper award, 2020
- AIS Best paper runner up Award, 2020
- IIM Calcutta Distinguished Alum Award, November 2020.
- Best Paper Nomination, WITS 2019.
- AIS (Association for Information Systems) Fellow, 2018
- Gobernarte Award for Big Data and Smart Cities Development for Fortaleza Brazil, from InterAmerican Development Bank, 2016
- Best Paper Runner Up Award, WITS 2016
- Best paper award from IEEE International Conference on Smart Cities, September 2016
- AIS SigHealth Award Honorable Mention for IEEE JBHI Paper, September 2016.
- InterAmerican Development Bank (IDB) award for Smart Cities and Big Data collaboration with the city of Fortaleza, Brazil, January 2016
- Best Paper Award, ACM Digital Health Conference, April 2016.
- Research Highlighted in Media: Big Ideas, Grand Challenges in AI, NPR Science Friday, TEDx Talk, NPR News, UA Alumni Magazine , International Journalism Festival, AZPM

- IBM Faculty Award, September 2012.
- Nominated for Regent's Professor award, 2010 -2012, 2014-2017, 2019-2021
- WITS Best Paper award, December 2009.
- IBM Faculty Development Award, July 2007.
- UA Leading Edge Innovator in Research Award, March 2007.
- Received "Advisor of the Year Award" from the University of Arizona, Graduate and Professional Students Council, March 2006.
- Best Paper Nomination, WITS 2005
- Science Direct: Top 25 Hottest Papers, 2005 for Information Systems Paper
- MISQ paper by ISI Essential Science Indicators as the October 2005 Fast Breaking Paper in the field of Economics and Business
- Received Eller Professorship, 2001.
- Nominated for University of Arizona graduate Education and Mentoring Award in 2001- Honorable Mention Awarded.
- Andersen Consulting Professor of the Year Award, March 2000.
- Nominated, University of Arizona Graduate Education and Mentoring Award, Spring and Fall 2000
- Recipient, Joseph Peggs and Margie Peggs Kault Award for Mentoring and Doctoral Placement, 1999.
- Nominated, MBA Faculty of the Year, 1998.
- Recipient, Joseph Peggs and Margie Peggs Kault Award for Mentoring and Doctoral Placement, 1998.
- Appeared numerous times on the Dean's list of Excellent Teachers.

Patents (Under Review)

1. Sudha Ram and Yun Wang, "Systems and Methods for Increasing Efficiencies in Urban Transportation", UA 16-137 (Patent Application number 62-305,398).
2. Sudha Ram, Yun Wang, Faiz Currim,, and Sabah Currim, "Predicting Student Retention Using Smart Card Transactions", UA 16-138 (Patent Application No. 62/305,374).

Publications

Refereed Journals

1. Lee, K. & Ram, S. "Explainable Deep Learning for False Information Identification: An Argumentation Theory Approach", *Information Systems Research (ISR Best Paper Nominee)*, Vol. 35, No. (2)*,* 2024, pp. 890-907.
2. Srinivasan K., Currim F., Ram S. "A Reduced Modeling Approach for Making Predictions With Incomplete Data Having Blockwise Missing Patterns", accepted for publication, *Informs Journal of Data Science,* 2024.
3. Lee, M., Kankanahalli, A., Maruping, L., Aanestadt, M., and Ram, S., "Digital Technologies and Advancement of Social Justice: A Framework and Agenda", Forthcoming Editorial in *Special issue of MISQ*, 2025.
4. Srinivasan K., Currim F., Lindberg C., Razjouyan J., Gilligan B., Lee H., Canada K., Goebel N., Mehl M.R., Lunden M.M., Heerwagen J.H., Najafi B., Sternberg E.M., Kampschroer K., Ram S. "Discovery of associative patterns between workplace sound level and physiological wellbeing using wearable devices and empirical Bayes modeling", *Nature, NPJ Digital Medicine*. 6(5). Doi: https://doi.org/10.1038/s41746-022-00727-1, 2023

5. Kim, B., Srinivasan, K., Kong, S., Kim, J., Shin, C., and Ram, S., "ROLEX: A Novel Method for Interpretable Machine Learning using Robust Local Explanations". *MIS Quarterly,* 47(3), September 2023, pp, 1303-1332.

6. Srinivasan, K., Currim, F., & Ram, S., A Human-in-the-Loop Segmented Mixed-Effects Modeling Method for Analyzing Wearables Data. *ACM Transactions on Management Information Systems*, *14*(2), 1-17.*,* doi: https://doi.org/10.1145/3564276 , 2023.

7. Wang, Yun, Faiz Currim, and Sudha Ram. "Deep Learning of Spatiotemporal Patterns for Urban Mobility Prediction Using Big Data", *Information Systems Research*, Vol. 33, No. 2, 2022, pp. 579-598.

8. Li, Y., Currim, F., and Ram, S. 2022. "Data Completeness and Complex Semantics in Conceptual Modeling: the need for a Disaggregation Construct," *ACM Journal of Data and Information Quality,* Volume 14, Issue 4, December 2022, pp 1–21 https://doi.org/10.1145/3532784

9. Ågerfalk, P. J., Conboy, K., Crowston, K., Eriksson Lundström, J. S., Jarvenpaa, S., Ram, S., & Mikalef, P. "Artificial Intelligence in Information Systems: State of the Art and Research Roadmap", *Communications of the Association for Information Systems*, 50, 2022, pp-pp. https://doi.org/10.17705/1CAIS.05017

10. Sudha Ram and Paulo Goes, "Focusing on High Impact Programmatic Research in Information Systems, Not Theory, to Address Grand Challenges", *MIS Quarterly,* Vol 45, No. 1, March 2021, pp. 478-483.

11. Srikar Velichety and Sudha Ram, "Finding A Needle In The Haystack - Recommending Online Communities On Social Media Platforms Using Network and Design Science", accepted for publication, *Journal of AIS*, 2020.

12. Zhang, Wenli, and Sudha Ram. "A Comprehensive Analysis of Risk Factors for Asthma: Based on Machine Learning and Large Heterogenous Data Sources", *MIS Quarterly, Special Issue on the Role of Information Systems in Chronic Disease Prevention and Management*, Vol 44, No. 1, pp 305-349, 2020.

13. Chan Soo Shin, Sung Hye Kong, Daehwan Ahn, Buomsoo (Raymond) Kim, Karthik Srinivasan, Sudha Ram, A Ram Hong, Ji Hyun Lee, Hana Kim, Jung Hee Kim, and Nam H Cho, "Novel Fracture Prediction Model Using Machine Learning in Community-Based Cohort Study", *Journal of Bone and Mineral Research*, https://doi.org/10.1002/jbm4.10337, Volume 4, Issue 3, March 2020.

14. Devi Bhattacharya, Faiz Currim and Sudha Ram, "Evaluating Distributed Digital Infrastructures: An Empirical Study Comparing On-Demand Cloud with Local Systems", forthcoming, *IEEE Transactions on Cloud Computing*, 2020.

15. Srikar Velichety, Sudha Ram and Jesse Bockstedt, "Quality Assessment of Peer-Produced Content in Knowledge Repositories using Development and Coordination Activities", *Journal of MIS,* June 2019, pp. 478-512.

16. Razjouyan, J., Lee, H., Gilligan, B., Lindberg, C., Nguyen, H., Canada, K., Burton, A., Sharafkhaneh, A., Srinivasan, K., Currim, F., Ram, S., Mehl, M. R., Goebel, N., Lunden, M., Bhangar, S., Heerwagen, J., Kampschroer, K., Sternberg, E. M., and Najafi, B. "Wellbuilt for Wellbeing: Controlling Relative Humidity in the Workplace Matters for Our Health," , *Indoor Air*, Vol 30, No. 1, January 2020, pp. 167-179.

17. Matthias Jarke, Boris Otto and Sudha Ram, "Data Sovereignty and Data Space Ecosystems", Business & Information Systems Engineering, August 2019, pp. 1-2.

18. Matthew Hashim, Sudha Ram and Zhulei Tang, "Uncovering the effects of digital movie format availability on physical movie sales", *Decision Support Systems,* Vol. 117, February 2019, pp. 75-86.

19. Sudha Ram and Dursun Delen, "Introduction to Inaugural Issue of Journal of Business Analytics", *Journal of Business Analytics, Vol. 1, No.1,* August 2018,, pp. 1-2.

20. Dursun Delen and Sudha Ram, "Research Challenges and Opportunities in Business Analytics", *Journal of Business Analytics*, Vol. 1, No. 1, August 2018, pp. 2-12.

21. Jun Liu and Sudha Ram, "Using big data and network analysis to understand Wikipedia article quality", *Data and Knowledge Engineering*, Volume 115, May 2018, pp.80-93.

22. Jasmien Lismont, Sudha Ram, Jan Vanthienen, Wilfried Lemahieu and Bart Baesens, "Predicting Interpurchase Time in a Retail Environment Using Customer Product Networks: An Empirical Study and Evaluation", *Expert Systems with Applications,* Vol. 104, August 2018, pp. 22-32.

23. Karthik Srininivasan, Faiz Currim and Sudha Ram, Predicting High Cost Patients at Point of Admission using Network Science, I*EEE Journal on Biomedical and Health Informatics,* Vol. 22, No. 6, November 2018, pp. 1970-1977.

24. Casey Lindberg, Karthik Srinivasan, Faiz Currim, Sudha Ram et. al., "Effects of office workstation type on physical activity and stress", *Occupational and Environmental Medicine,* Vol. 75, Issue 10, 2018, pp. 689-695.

25. Faiz Currim, Sudha Ram, "Understanding Semantic Completeness in Rule Frameworks for Modeling Cardinality Constraints", *International Journal on Conceptual Modeling – EMISA, Special issue tribute to Heinrich Mayr",* Vol. 13, January 2018, pp. 293-315.

26. Matthias Jarke, Boris Otto, Sudha Ram, "Data Sovereignty and Data Space Ecosystems", *Business and Information Systems Engineering (BISE)*, Vol. 60, No. 2, 2018, pp. 191-192.

27. Jun Liu and Sudha Ram, "Improving the Domain Independence of Data Provenance Ontologies: A Demonstration Using Conceptual Graphs and the W7 Model". *Journal. Database Management. 28(1)*: 43-62 (2017).

28. Kunpeng Zhang, Sudha Ram, and Sid Bhattacharya, "Large Scale Network Analysis for Online Social Brand Advertising", *MIS Quarterly,* Special Issue on Transformational Issues in Big Data and Analytics for Networked Business, December 2016.

29. Ruben Amaresingham, G. Cohen, M. Entwhistle, G. Escobar, V. Liu,B Lo, S. Ram, S Saria and B. Xie, "Consensus statement on Electronic Health Predictive Analytics: A Guiding Framework to Address Challenges", eGEMS: Generating Evidence and Methods to Improve Patient Outcomes, Col. 4, issue 1, Article 3, July 2016.

30. Sudha Ram, Wenli Zhang, Max Williams and Yolande Pengetenze, "Predicting Asthma Related Emergency Department Visits Using Big Data", Featured Article, *IEEE Journal of Biomedical and Health Informatics*", Special issue on Big Data Analytics in Health Care, July 2015, Available from: *http://jbhi.embs.org/2015/07/08/predicting-asthma%E2%80%90related-emergency-department-visits-using-big-data/*

31. Devi Bhattacharya and Sudha Ram, "RT @News: An Analysis of News Agency Ego Networks in a Micro-blogging Environment", *ACM Transactions on MIS,* Vol. 6, No 3, pp. 1-25, October 2015.

32. Yun Wang, and Sudha Ram, "Prediction of Location Based Sequential Purchasing Events Using Spatial, Temporal and Social Patterns", in *IEEE Intelligent Systems*, Special Issue on Big Data and Predictive Analytics, May/June 2015 pp. 2-9.

33. Sudha Ram, "Spurring Innovation Using Big Data Analytics: Directives and Examples from HealthCare", *Journal of Information technology Theory and Application*, 2015.

34. V. Khatri, Sudha Ram, R. Snodgrass, P Terenziani, "Differentiating Telic-Atelic Data Semantics in Conceptual Design", *IEEE Transactions on Knowledge and Data Engineering,* Vol. 26, No. 3, 2014, pp. 528-548.

35. Sabah Currim, Sudha Ram, Alexandra Durcikova, Faiz Currim, "Using a knowledge learning framework to predict errors in database design", *Information. Systems*, 40, 2014, pp. 11-31

36. Paolo Atzeni, Christian S. Jensen, Giorgio Orsi, Sudha Ram, Letizia Tanca, & Riccardo Torlone, "The relational model is dead, SQL is dead, and I don't feel so good myself", *SIGMOD Record* 42(2), 2013, pp. 64-68.

37. Paolo Atzeni, David W. Cheung, Sudha Ram (Eds.): Conceptual Modeling - 31st International Conference ER 2012, Florence, Italy, October 15-18, 2012. Proceedings. *Lecture Notes in Computer Science 7532*, Springer 2012, isbn 978-3-642-34001-7.

38. W. Wei and S. Ram, "Using a Network Analysis Approach for Organizing Social Bookmarks and Enabling Web Content Discovery", *ACM Transactions on MIS*, Vol. 3, No. 3, October 2012.

39. S. Ram and J. Liu, "A Semantic Foundation for Provenance Management", *Journal on Data Semantics,* Vol 1, No. 1, May 2012, pp. 11-17.

40. F. Currim and S. Ram, "Modeling Spatial and Temporal Set-Based Constraints During Conceptual Database Design", *Information Systems Research*, March 2012, Vol 23, pp. 109-128.

41. J. Liu and S. Ram, "Who Does What: Collaboration Patterns in the Wikipedia and their impact on Article Quality", *ACM Transactions on MIS,* Vol. 2, No. 2*,* Article 11*,* June 2011.

42. A. Olive, S. Ram, J. Parsons, , G. Wagner, Y. Wand, and E. Yu, "New Directions for

Conceptual Modeling", *Lecture Notes in Computer Science* 6998 Springer 2011, ISBN 978-3-642-24605-0, pp. 524-525.

43. X. Zheng, G. Keng, D. Zeng and S. Ram, "Towards the Next Generation Team Science Enabling Platform for Understanding and Managing Scientific Collaboration", *IEEE Intelligent Systems,* Vol. 26, No. 6, 2011, pp. 72-76, (with).

44. S. Goff, D. Stanzione, and S. Ram, "The iPlant Collaborative: Cyberinfrastructure for Plant Biology", *Frontiers in Plant Sciences,* Vol. 2, No. 0, July 2011.

45. Y.Liu, S. Ram, R. Lusch and M. Brusco, "MultiCriterion Market Segmentation: A new Model, Implementation and Evaluation", *Marketing Science*, Vol. 29, No. 5, September-October 2010, pp. 880-894.

46. S. Ram and J. Liu, "Provenance management in BioSciences", CMLSA 2010, LNCS: *Lecture Notes in Computer Science* 6413, Springer ISBN 978-3-642-16384-5, 2010 pp. 54-64.

47. F. Currim and S. Ram, "When Entities are Types: Effectively Modeling Type-Instantiation Relationships", *Lecture Notes in Computer Science 6413*, 2010, pp. 138-147.

48. Y. Liu, S. Ram, T. Lin, and X. Su "A Non-Invasive Software Architecture Style for RFID Data Provisioning", *International Journal of Applied Logistics,* Vol.1, No. 1, January 2010, pp. 1-15.

49. W. Wei and S. Ram, "FASTS: FAcets Structured Tag Space - A Novel Approach to Organize and Reuse Social Bookmarking Tags", Lecture *Notes in Computer Science 6105* Springer 2010, pp. 426-438..

50. F. Currim and S. Ram, "Conceptually Modeling Windows and Bounds for Space and Time in Database Constraints", *Communications of the ACM,* Vol 55, No. 11, pp. 125-129, November 2008.

51. S. Ram, W. Wei and K.P. Zhang, "Linking Biological Databases Semantically for Knowledge Discovery*", Lecture Notes in Computer Science 5232,* Springer 2008, pp. 22-32.

52. H. Zhao, and S. Ram, "Entity matching across heterogeneous data sources: An approach based on constrained cascade generalization", *Data and Knowledge Engineering*, Vol. 66, No. 3, September, 2008, pp. 368-381.

53. J. Liu and S. Ram, "A Semiotics Framework for Analyzing Data Provenance Research", *Journal of Computing Science and Engineering*, Vol. 2, No. 3, September 2008, pp. 221-248.

54. F. Currim and S. Ram, "Survey of Cardinality Constraints for Snapshot, Temporal and Spatio-temporal Semantic Models", in *Systems Analysis and Design for Advanced Modeling Methods: Best Practices*, April 2010.

55. Rafik Bouaziz, Salem Chakhar, S. Ram, Vincent Mousseau, and Abdelkader Telmo "Database design and querying within the fuzzy semantic model", *Information Sciences*, . Volume 177, No. 21, 2007, pp. 4598-4620.

56. D. Embley, A. Olive and S. Ram, "Conceptual Modeling: a 25 Year history", Springer Verlag, LNCS 4215, November 2006, pp. V-VI.

57. V. Khatri and S. Ram, "Defining, Eliciting and Using Data Semantics for Emerging Domains", *Journal of Database Management",* pp. 1-3 2008.

58. A. Bajaj and S. Ram, "A Comprehensive Framework Towards Information Sharing Among Government Agencies", *International Journal of E-Government Research,* Vol. 3, No. 2, April-June 2007, pp. 29-44.

59. A. Bajaj, G. Allen, V. Khatri, S, Ram, and K. Siau *"*Advances in Data Modeling Research", *Communications of the AIS,* Vol 17, Article 30, April 2006.

60. V. Khatri, S. Ram and R. Snodgrass, "On augmenting database design-support environments to capture the geo-spatio-temporal data semantics", *Information Systems,* Vol. 31, No. 2, 2006, pp. 98-133.

61. H. Zhao and S. Ram, "Combining Schema and Instance Information for combining Heterogeneous Data Sources, *Data and Knowledge Engineering*, 61, No. 2, 2007, pp. 281-303.

62. H. Zhao, S. Ram and A. Sinha, "Elitist and Ansemble Strategies for Cascade Generalization", *Journal of Database Management,* Vol. 17, Issue 3, 2006, pp. 92-107.

63. V. Khatri, I. Vessey, S. Ram and V. Ramesh "Cognitive Fit between Conceptual Schema and Internal Problem Representation: The case of geospatio temporal conceptual schema

comprehension", *IEEE Transactions on Professional Communication", Vol. 49, No. 2, June 2006, pp. 109-127.*

64. D. Liginlal, S. Ram and L. Duckstein "A Fuzzy Measure-Theoretical Framework for Screening Product Innovations", *IEEE Transactions on Systems Man and Cybernetics, Part A: Systems and Humans,* Vol. 36, No. 3, May 2006*,* pp. 577-591.

65. V. Khatri and S. Ram, "A Comprehensive Framework for Modeling Set-Based Business Rules during Conceptual Design", *Information Systems*, Vol. 30, No. 2, April 2005, pp. 89-118. (**This paper is in the Science Direct Top 25- list of Hottest papers).**

66. H. Zhao and S. Ram, "Entity Identification for Heterogeneous Database Integration - A Multiple Classifier System Approach and Empirical Evaluation"*, Information Systems*, Vol. 30, No. 2, April 2005, pp. 119-132.

67. J.Liu and S. Ram, "An Agent Based Approach for Sourcing Business Rules in Supply Chain Management", Vol. 1, No. 1, *International Journal of Intelligent Information Technologies*, January-March 2005, pp. 1-16.

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69. J. Park and S. Ram, "Information Systems Interoperability: What Lies Beneath?", *ACM Transactions on Information Systems***,** Vol. 22, No. 4, October 2004, pp. 595-632.

70. V. Khatri, S. Ram, and R. Snodgrass, "Augmenting a Conceptual Model with Spatio-Temporal Annotations", *IEEE Transactions on Knowledge and Data Engineering,* Vol. 16, No. 11, November 2004*,* pp. 1324-1338.

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81. T. W. Ling and S. Ram, "Research Directions in Conceptual Modeling", (Guest Editorial), *Data and Knowledge Engineering*, Vol. 31, No. 3, Nov. 1999, pp. 225-227.

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83. A. Bajaj and S. Ram, "Evaluating Completeness of Conceptual Business Process Models: A Metric Based on Case Studies", Journal of Information Technology Cases and Applications, Vol. 1, No. 4, 1999, pp. 5-30.

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88. V. Ramesh and S. Ram "Integrity Constraint Integration in Heterogeneous Databases: An Enhanced Methodology for Schema Integration", *Information Systems*, Vol.22, No. 8, pp. 423-446, 1997.

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5. "Current Areas in Database Research", in *Proceedings of the 26th Hawaii International Conference on System Sciences*, Maui, Jan 1993.
6. "Integration of Heterogenous Databases Using the Unifying Semantic Model", Technical Report, National Institute of Standards and Technology, July 1991.
7. " A Unifying Semantic Model", Technical Report, National Institute of Standards and Technology, Sept. 1989.
8. "Emerging Areas in Database Research", an Introduction to the Software minitrack on "Database Formalisms, Software and Systems", in *Proceedings of the 22nd Hawaii International Conference on System Sciences*", Hawaii, Jan 1989.
9. "A Practical Approach to Database Design", *Journal of the Tucson Computer Societies*, Oct. 1987.
10. "Data Integration Strategies for Computer Integrated Manufacturing", Technical report, NIST IR-88-4002, National Institute of Standards and Technology, Gaithersburg, MD, Nov. 1988 (with A. Jones, and W. Davis).

Manuscripts under Review

1. Zhang, W, Geng, S., Xie, J., Liang G., Niu, B., and Ram, S. "Predicting Consultation Success in Online Health Platforms Using Dynamic Knowledge Networks and Multimodal Data Fusion" , invited for *revision at MIS Quarterly*, 2024
2. Zhang, W.,, Xie, J., Kim, B., Ram, S., "Learning for Chronic Disease Management: Leveraging Large Language Models and Multi-Prompt Engineering with Medical Knowledge Injection", under revision for Information Systems Research, 2024.
3. Kim, B**.,** Lee, K., Shin, D., Han, S., and Ram, S., "A Reciprocal Multi Task Learning Framework for Recommendation in Online Matching Platforms, revision under review at *MIS Quarterly*, 2024.
4. Kim, B., Youn, S., Chen, W., and Ram, S., "Designing In-App incentives: The Effect of Rewarded Ads on Mobile User Engagement". Under Review with *JMIS*, 2024.
5. Lee, K., & Ram, S. "Multitask-Finetuned Theory-Based Prompt Learning for Hate Speech Detection." Revision under review at *Information Systems Research (ISR)* (Best Student Paper Winner at *ICIS 2020*), 2023
6. Lee, K., & Ram, S. "Deep Learning for Mitigating Online Fake News: A Deceptive-intention-based," Under review at *Production and Operations Management* (Best Completed Research Paper Winner at *ICIS 2021*), 2024
7. Buomsoo Kim, Karthik Srinivasan, Sudha Ram, "Fairness-aware Graph Representation Learning for Multiple Patient Outcome Prediction in Intensive Care Units, under review with Special issue on Responsible Data Science of *Production and Operations*

Management, 2024.

8. Li, Y., Ernst, K.C., Pogreba-Brown, K., Shilen, A., Heslin K.M., Austhof E., and Ram, S. "Multi-method Contact Tracing: The Complementary Nature of Manual, Automated, and Semi-Automated Contact Tracing", under review, *International Journal of Medical Informatics*, September 2024.

Work In Progress

1. Kyuhan Lee and Sudha Ram, "PERSONA: Personality based Deep Learning Method for Detecting Hate Speech, targeted at MIS Quarterly, 2024.
2. Lee, K., & Ram, S. "Intention-based Deep Learning Approach for Detecting Online Fake News," Targeted at *MIS Quarterly (MISQ)* (Best Completed Research Paper Winner at *ICIS 2021*).
3. Buomsoo Kim, Karthik Srinivasan, and Sudha Ram, "Uncertainty-aware, additive explanations for prediction of post-admission conditions in ICUs", targeted at IEEE Journal on Biomedical and Health Informatics..
4. Kim, B., Lee, K., Ram, S., Lopez-Hoffman, L., Miller, M., Lien, A., & Emerson, K. "A Theory-Driven Graph Representation Learning Method for Improving Environmental Impact Studies," Targeted at *MIS Quarterly (MISQ)*
5. Li, Y., and Ram, S. "User Classification on Social Media: A Hierarchical Classification Model Supported by Human Knowledge."
6. Li, Y., and Ram, S. "Startup Success Prediction using Graph Neural Networks." *Experimenting phase, targeting MISQ.*
7. Karthik Srinivasan, Faiz Currim and Sudha Ram, "Exploratory Analysis using Bayesian Belief Networks for Analyzing Hospital Discharge Data", to be submitted to ISR.
8. S. Ram, Z. Qi, K. Romero, and W. Dumouchel, "Drug Interactions Analysis from Clinical Trials using Bayesian Techniques", in progress.
9. Sudha Ram and Zhengchao Yang. "Using Large Scale Network Science and Deep Learning for Innovation and Technology Forecasting Using Patent Datasets." To be submitted to *Management Science*.
10. Sudha Ram and Kyuhan Lee, "Large Scale Network Analysis for Customer Segmentation on Social Media", to be submitted to *MISQ*.
11. Wenli Zhang and Sudha Ram, "Understanding effects and beliefs about safety of Electronic Nicotine Delivery Systems (ENDS) from Social Media", to be submitted to *JAMIA*.
12. Zhengchao Yang, Faiz Currim, Sabah Currim, and Sudha Ram, "Prediction Models for Alumni Donation Using Deep Learning", to be submitted to *ISR*.

Invited Presentations

1. "AI and Conceptual Modeling: Will the Twain Meet and How?, keynote speech, ER conference October 2021
2. "Programmatic High Impact Information Systems Research using Data science to address Grand Challenges, Inaugural Speaker Keynote address at Brij Disa Center for Data Science, Indian Institute of Management, Ahmedabad, India, November 18, 2021.
3. "Leveraging AI and Big Data to address Grand Challenges", keynote presentation, CAISE 2021, Melbourne, Australia, July 2021.
4. "Leveraging AI and Big Data to create Value", Keynote presentation, Memphis Data Conference 2021, March 25, 2021
5. "Focusing on Programmatic High Impact Information Systems Research, Not Theory, to Address Grand Challenges, MIS Quarterly Special Issue workshop, January 29, 2021

6. "Big Ideas, Grand Challenges Series: Artificial Intelligence", Panel discussion, University of Arizona Honors College Research Seminar Series, January 27, 2021
7. "Using Data Science and Big Data Analytics to Combat COVID-19", Presentation to Zipperman Scholars, October 6, 2021.
8. "Building a Smart Campus: Predictive Modeling using Network Science and Big Data", Distinguished Research Seminar at University of Illinois, Chicago, April 2, 2021.
9. "Focusing on High Impact Research to address Grand Challenges in Information Systems", AT&T distinguished Lecture, University of Texas, San Antonio, October 22, 2021.
10. "Artificial Intelligence: Beyond the Hype", Professional Development Workshop Presentation, International Conference on Information Systems (ICIS 2020), December 2020.
11. "Publishing Big Data Analytics Research", Editors in Chief Panel Discussion, Workshop on Information Technology and Systems, WITS 2020, December 2020.
12. "Big Data Analytics for COVID-19", Presentation to Zipperman Scholars, September 28, 2020
13. "Using Data Science for Contact Tracing at University of Arizona", Presentation to Undergraduate Students at University of Arizona, September 23, 2020.
14. "Using Data Science and Big Data Analytics to Combat Covid -19", University of Arizona Research Coordination Group and RII Research Seminar, August 2020.
15. "Ethical Aspects of Collection, Protection and Use of Data" Panel discussion, University of Arizona Center for Leadership Ethics, August 14, 2020
16. "AI and Big Data research in Health Care", AIS chapter of India, June 2020
17. "Leveraging Big Data to create value", Keynote speech at Bolzano Summer of Knowledge, August 2020.
18. "TIMESCAPE: Big Data based solutions for rentry planning and Management in Large Organizations", Research presentation at RCG workshop, University of Arizona, July 2020.
19. "Leveraging Network Science and Big Data for Prediction Modeling", Seminar, Applied Math Seminar Series, University of Arizona, June 2020.
20. "Is theory Dead in the world of AI ad Big Data", Panel presentation, WITS panel, Munich, Germany, 2019.
21. "Editors Panel: Publishing in Journal of Business Analytics", SIGDSA Plenary Panel, Munich , December 2019
22. "AI and Big Data in Computation Social Science", Computational Social Science Workshop, University of Arizona, College of SBS, December 2019
23. "Interpretable AI in HealthCare", International Conference on Digital Health, Marseilles, France November 2019.
24. "Leveraging AI and Big Data to create Enterprises of the Future", keynote address at IEEE EDOC Enterprise Computing Conference, October 2019.
25. "Using Spatio Temporal Data and Network Science for Predicting Student Retention", Notre Dame University Distinguished Speaker Series, September 2019.
26. "Unlocking the Potential of AI and Big Data", Guruspeak, IIM Calcutta Alumni featured keynote speaker, Mumbai, October 2019.
27. "AI for Prediction Modeling", University of Queensland Seminar Series, November 2019.
28. "AI and Machine Learning in Education", PAN IIT conclave, New Delhi, India, January 2019.
29. "Using Network Science for Predicting Brand Adoption on Social Media: The Role of Indirect Social Influence", Seoul National University Research Seminar, March 2019.
30. "Editors Panel: Vision for Journal of Business Analytics", SIGDSA Plenary Panel, San Francisco, December 2018.
31. "Using Data Science for Predictive Analytics", Springboard Rise Conference, San Francisco, September 2018.
32. "Introduction to Journal of Business Analytics", OR 60 Conference, Lancaster, UK, September 2018.
33. "Career Advice for Doctoral Students", AMCIS Doctoral Consortium, New Orleans, 2018.
34. "Leveraging Big Data and Analytics for a Better World", Keynote address at RCIS 2018, IEEE 12th International Conference on Research Challenges in Information Science", Nantes, France, May 2018.
35. "Leveraging Data Science for Creating a Smarter World", Keynote presentation at Data Science Summit, University of California, Merced, CA April 2018.
36. Towards Integration of Network Science and Machine Learning for Prediction Models", Research Seminar, Seoul National University, Seoul, South Korea, April 2018.

37. "Replicating Clinical Studies Using Big Data", MISQ Research Workshop, UT Dallas, January 2018.
38. "Big Data Analytics in Health Care: Challenges and Opportunities." Keynote address at International Conference of the Sri Lankan Association for Advancement of Science, Colombo, Sri Lanka. December 2017.
39. "Leveraging Big Data and Analytics for Addressing Social Grand Challenges." Research seminar at Sri Jayawardane University, Colombo, Sri Lanka. December 2017.
40. "Understanding behavioural patterns from Big data for Predicting Freshman Retention", Faculty Research Seminar, Indiana University School of Business. Indiana University.
41. "Big Data for Conceptual Modeling." ER Conference, Valencia, Spain. November 2017.
42. "Big Data Analytics: Research and its Impact on Practice", Celebrate Research Faculty Workshop, Eller College of Management, September 2017
43. "Research on Big Data Analytics", Keynote address, Honor College Workshop for General Community and Parents Weekend, Tucson, AZ, Honors College, University of Arizona, September 2017.
44. "Understanding Behavior Using Smart Card Transactions to Predict Freshman Retention", Research Seminar, Katholik University of Leuven, Belgium. August 2017.
45. "Leveraging Big Data for actionable insights", Keynote Address at Facility Source National Convention, Phoenix, March 2017.
46. "Using Big Data to Understand Movement and Behavior from Large Heterogeneous Datasets", Faculty Research Seminar. University of Seoul, Seoul, South Korea, March 2017.
47. "Using Big Data for Predictive Analytics in health Care: The case of Asthma", Research Seminar, Arizona Cancer Center, University of Arizona, Tucson, February 2017.
48. "Leveraging Big Data and Analytics at the INSITE center", Zipperman Scholar Program Superstar Presentation, Eller College of Management, University of Arizona, Tucson, January 2017.
49. "Building Smart Cities Using Big Data", City of Tucson Workshop on Big Data and Analytics. Tucson, AZ, January 2017.
50. "Leveraging Big Data for Health Care and Predictive Analytics", Predictive Analytics Conference Chicago, March 2016.
51. "Using Big Data to develop Smart Transportation", Inter American Development Bank, March 2016.
52. "Smart Cities Development Strategies and Empirical Evidence", Conference on Smart Cities, Puebla, February 2016
53. "Smart Cities Using Big Data", Smart Cities Expo and Conference, San Luis Potosi, March 2016.
54. "Building Smart Cities Using Big Data and Smart cards", Research Seminar, University of Fortaleza, Brazil, June 2016.
55. "Proactive Freshman Retention Prediction Using Smart Card Big data", Research Seminar, University of Colorado, Boulder, April 2016
56. "Using Big Data to Predict Freshman Retention" presentation at ASU research Seminar, February 2016
57. "Using Big Data to Extract Value for Businesses", Wildcat Talk at Phoenix Leadership Alumni Meet, December 2016.
58. "Leveraging Big Data for Population Health Analytics", Population Health Analytics Conference, San Diego, May 2016
59. "Using Big Data for Predicting Emergency Room Visits" Analytics Workshop. University of Texas at Austin, March 2016.
60. "Using Big Data to develop Smart Cities, PAG Summit on Smart cities and Intelligent Transportation, October 2016, Key Note address, Tucson, AZ.
61. "Leveraging Big Data", Eller Alumni Meeting, Chicago, September 2016.
62. "Using Machine Learning and Large Scale Network Analysis for Predictions with Big Data", keynote presentation at 3rd AAAI International Workshop on the World Wide Web and Population Health Intelligence (W3PHI 2016), Phoenix, February 2016.
63. "Using Big Data to develop Smart Cities, PAG Summit on Smart cities and Intelligent Transportation, October 2016, Tucson, AZ.
64. "Leveraging Big Data", Eller Alumni Meeting, Chicago, September 2016.
65. "Using Machine Learning and Large Scale Network Analysis for Predictions with Big Data", keynote presentation at 3rd AAAI International Workshop on the World Wide Web and Population Health Intelligence (W3PHI 2016), Phoenix, February 2016.

66. "Extracting Value from Big Data", Keynote presentation at Raytheon Summit, Tucson, November 6, 2015
67. "Big Data Causing a Paradigm Shift", keynote presentation at AZ Tech Summit, Tucson, October 14, 2015
68. "Extracting Value from Big Data", presentation at University of Arizona IT summit, Tucson October 13, 2015.
69. "Extracting Value from Big Data for Health Care using Predictive Analytics, Keynote presentation at Predictive Analytics Summit, Boston, October 20, 2015.
70. "Prediction Models in health Care using Machine Learning and Big Data", presentation at Georgia State University Big Data Institute Seminar Series, October 9, 2015.
71. "Leveraging Big Data for Health Care Advances", presentation at Michigan State University Seminar, September 25, 2015.
72. "Extracting Value from Big Data", Keynote Address, International Conference on Electronic Commerce, Seoul , Korea, August 4, 2015.
73. "Large Scale Network Analysis for Online Social Brand Advertising", MISQ workshop for Special Issue on "Transformational Issue in Big Data and Analytics for Networked Business", Brussels, Belgium, August 13-14, 2015.
74. "Extracting Value from Big Data", presented to Military Intelligence Program Officers, Tucson Arizona, September 9, 2015. University of Arizona "Never Settle" Presidential Campaign Event, Chicago, IL, June 4, 2015.
75. "Creating a Better World Using Big Data Analytics",
76. "Creating a Smarter World Using Big Data: Research challenges", presentation to ELLER Entrepreneurship Board of Advisors, April 30, 2015
77. "Extracting Value from Big Data Analytics", presentation to Eller Faculty Salon, April 30, 2015.
78. "Extracting Value from Big Data", keynote address at Symposium on Information Systems, Indian School of Business, January 5, 2015.
79. "Using Large Scale Network Analysis for News Propagation on Social Media", keynote presentation to ISB Analytics Program, January 7, 2015
80. "Extracting Value from Big Data", keynote address at CRIM Symposium on Big Data analytics, Chicago, IL, March 18, 2015
81. "Big Data and Predictive Analytics: A Research Agenda", keynote address, Mobile Big Data Conference, Atlanta, Georgia, October 29, 2014
82. "Predicting Asthma Related Emergency Department visits using Big Data", Symposium on Big Data Analytics for Health Care, Tucson, AZ, October 17, 2014.
83. "Population Level Risk modeling for Asthma Related ED visits Using Big Data", Research seminar at University of Illinois, Chicago, October 2, 2014
84. "Using Big Data for Predictive Analysis", CRIM Big Data Conference, Chicago, October 1, 2014.
85. "Improving the World Using Big Data Analytics", keynote address at YWCA Women's Leadership Conference, Tucson, Arizona, September 23, 2014
86. "Creating a Smarter World Using Big Data", **TEDx talk**, Rialto Theater, Tucson, AZ December 8, 2013, http://www.youtube.com/watch?v=9vGR3VaFxJM
87. "Building a Smarter Campus Using Big Data and Predictive Analytics", INSITE Symposium on Big Data Analytics, October 2013, University of Arizona, http://www.youtube.com/watch?v=boPR2KGxsm4
88. "Big Data for Health Care Advances", Ventana Medical Systems, October 2013.
89. "Advances in Big Data Analytics for Health Care", University Medical Center, University of Arizona, June 2013.
90. "Measuring Social Media Impact", University of Arizona Information Technology Group, June 2013.
91. "News Propagation Analysis on Twitter", Research presentation at Indian Institute of Management, Kolkata, February 2013
92. "Network Mining Techniques to examine Twitter News Propagation", Research Presentation at IIM Ranchi, February, 2013.
93. "Social Network Mining", presentation to UA Analytics and Data Mining team, February 2013.
94. "How to Use Social Media Effectively", Presentation to UA Social Media and UA Marketing teams, November 2012.
95. "Social Media Analytics" presentation to UA Athletics Department, July 2012.
96. "Data Mining and Analytics", presentation to UA Analytics team, August 2012.

97. "Innovations in Business Models spawned by Social Media", presentation to Sigma Chi Alumni Chapter, February 2012.
98. "Role of Social Media Analytics for Health Care", Symposium on Predictive Analytics in Health Care, College of Pharmacy, University of Arizona, December 8, 2012.
99. "Social Media Analytics in Health care and Biomedicine", BIG Data Symposium, University of Arizona, July 2012
100. Presentations on Social Media Analytics at Walmart Research labs, Intuit Research labs, and SONY Entertainment May 2012.
101. "Wikipedia Collaboration Patterns and implications for the iPlant Collaborative", SUNY Buffalo, September 2011.
102. "Business Intelligence and Analytics", IBM Research Presentation, February 2011
103. "Business Intelligence and Analytics", HP Research labs Presentation, March 2011
104. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", AZ Tech Council, Phoenix, September 2010
105. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", AZ Tech Council, Tucson, November 2010
106. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", Yahoo Research Labs, India, December 2010
107. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", Infosys Research Labs, India, December 2010
108. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", IBm Global Research labs, December 2010
109. "Determining Data Quality Based on Provenance", Workshop on Data Quality in the DoD, October 2010.
110. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", University of Zurich, June 2010.
111. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", Seminar at University of Texas, Austin, February 2010.
112. "Data Access and sharing in the iPlant Collaborative", ASIST Research Data Access and Preservation Workshop, April 2010.
113. "Data Sharing and Collaboration: Lessons From Science and Industry Collaborations", , CSSA, and SSSA Annual Meetings, November 2010.
114. "Who Does What in the Wikipedia: Collaboration patterns and their impact on Data Quality", Seminar in SIE department, University of Arizona, September 30, 2010.
115. "Incorporating Provenance and Business Process semantics into Information Life Cycle Management", IBM Tucson, February 12, 2010.
116. "Who Does What: Collaboration Patterns in the Wikipedia and their impact on Data Quality", University of Texas research Seminar, February 5, 2010.
117. "Conceptual Modeling Value Assessment", invited talk at Ford Motor, September 2008
118. Keynote Address on the "iPlant Collaborative" at the Enterprise Integration Conference, Sydney, Australia, August, 2008.
119. Invited presentation, "MIS Research issues in the iPlant Collaborative", University of Sydney, August 2008.
120. Faculty Mentor at Young Faculty and Doctoral Consortium on Enterprise Information Integration, August 2008
121. Invited Presentation, "Data Provenance: What is it, why is it necessary, and how do we deal with it", Enterprise Information Integration Workshop, Kioloa, Australia, August 2008.
122. "Understanding Semantics of Data Provenance", Tsinghua University Research Seminar, Beijing, China, June 21, 2006.
123. "Data Provenance Semantics and Research Issues", University of British Columbia Research Seminar, April 7, 2006
124. Data Provenance in the Context of New Product Development", Information Technology Industry Research Council, Tucson AZ, November 16, 2005.
125. "Understanding and Representing Data Provenance", National Digital Information Preservation Partners Meeting, Berkeley, CA, January 9-12, 2006.
126. "Understanding Data Provenance", Ford Motor Co Seminar, Tucson, AZ 85721, November 2, 2005

127. "Using Semantics for Database Interoperability", National Institute of Standards and Technology, SIMA Technical Seminar, November 14 2005.
128. "Toward Semantic Interoperability of Heterogeneous Biological Data Sources", **Keynote Address,** CAISE 2005 Conference, Oporto, Portugal, June 2005.
129. "Data Provenance in the Context of New Product Development", NSF Workshop on Digital Archiving and Preservation", Atlanta, Georgia, May 17-18, 2005.
130. "Semantic Modeling and Enterprise Data Management", presented at Sanofi Aventis, October 2004.
131. "Data Management: Issues and Challenges", keynote address in Partners in Business Program, Utah State University, December 2, 2004.
132. "Dynamic Business Rule Sourcing", Presented at Intel Corp, July 2004.
133. "Security in databases", Arizona Health Sciences Seminar Series, University of Arizona, May 2003.
134. "A Semantics based Approach for Modeling Business Rules", Applied Technology in Business Workshop, Oakland Unviersity, October 2002.
135. "What is new about the New Economy", Tucson Link Forum, October 2000.
136. "Semantic Inter-operability and Data Warehouse Design", October 2000, Oakland University, Fall ATIB Conference.
137. "Evaluation of Agent Based Systems", Raytheon Corp., February 2000.
138. "The Saguaro Digital Library: Challenges for Research and Development", School of Renewable Natural Resources, Feb. 2000.
139. "Metrics for Evaluating Data Warehouse Implementations, Intel Corporation, April 1999.
140. "Technology for Intelligent Agents", Raytheon Corp, Dallas, October 1999.
141. "A Virtual Enterprise Model for Collaborating Intelligent Agents", Office of Advanced Analytical Tools", CIA, May 1999.
142. "Semantic Interoperability in Geographic Database Systems", Seminar, MIS department, University of Arizona, October 1999.
143. "Intelligent Agents: Myth or Reality", Office of Research and Development, CIA, May 1998
144. "Role of Cognition in Conceptual Modeling", *Workshop on Cognition and Conceptual Modeling (ER'97)*, UCLA, Los Angeles, November 1997.
145. "Intelligent Agents: Myth or Reality", Office of Research and Development, CIA, VA, May 1997.
146. "Intelligent Multimedia Data Management", Office of Research and Development of the CIA, October 1997.
147. "A New Paradigm for File Access", critique, presented at *International Conference on Information Systems*, Vancouver, Canada, Dec. 1994.
148. "The Role of Databases in Knowledge Discovery", presented at *Workshop in Information Technology and Systems - WITS'94*, Vancouver, Canada, Dec. 1994.
149. "Domain Knowledge in CASE Tools", presented at *Workshop on Information Technology and Systems - WITS-93*, Orlando, Dec. 1993.
150. "Database Tools and Techniques", presented at *ISECON - Information Systems Education Conference*, Phoenix, Nov 7, 1993.
151. "Semantic Integration of Heterogeneous Databases", presented at *ORSA/TIMS Meeting*, Phoenix, Nov 1-3, 1993.
152. "Extracting Information from Large Scientific Databases", presented at *ORSA/TIMS Meeting*, Phoneix, Nov. 1-3, 1993.
153. "Managing Heterogeneous Databases", presented at *Workshop on Management of Advanced Information Technologies*, Syracuse, Oct. 1993.
154. "Screening New Products: A methodology and system", presented at *Marketing Science Workshop*, Dallas, TX., Dec. 3, 1992.
155. "Heterogeneous Distributed Database Integration in a Manufacturing Environment", presented at *Honeywell Inc.*, Glendale, AZ., Nov. 12, 1992.
156. A Framework for Conflict Identification and Resolution in a Heterogeneous Database Environment", presented at American Express Information Systems Division, Phoenix, AZ. Nov. 13, 1992.
157. "Object Oriented Information Engineering Systems", presented at *ORSA/TIMS Joint National Meeting*, Philadelphia, Oct. 1990.
158. "Integrating AI and Databases", presented at the Advanced Technologies Division of A.C. Nielsen, Chicago, August 20, 1990.
159. "An Object-Oriented Model for Distributed Database in Manufacturing", presented at the *TIMS/ORSA Joint National Meeting*, Las Vegas, May 1990.

160. "Communication among Distributed Knowledge Based Systems", presented at the *TIMS/ORSA Joint National Meeting*, Las Vegas, May 1990.
161. "Allocation of Databases in a Distributed Database System", presented at the *TIMS/ORSA Joint National Meeting*, Las Vegas, May 1990.
162. "Allocation of Databases in a Distributed Database System", presented at the *Information Systems Colloquium*, University of California, Los Angeles, April 5, 1990.
163. "Integration of Heterogeneous Distributed Databases for Computer Integrated Manufacturing", presented at Computer Science Department, University of Arizona, Nov. 1989.
164. "A Unifying Semantic Model", presented at the *14th Meeting of ANSI X3T2 Technical Committee for Data Interchange*, Albuquerque, Oct. 1989.
165. "Design of An Expert System for Screening New Products", presented at *ORSA/TIMS Meeting*, Vancouver, Canada, May 1989.
166. "An Expert System for Designing Object-Oriented Distributed Databases", presented at, *ORSA/TIMS Meeting*, Vancouver, Canada, May 1989 (with S. Hayne).
167. "Design of Distributed Knowledge Based Systems for Computer Integrated Manufacturing", to the National Institute of Standards and Technology, MD, January, 1989.
168. "An Architecture for Distributed Knowledge Based Systems", presented at the *TIMS/ORSA conference*, Denver, October, 1988 (with D. Carlson).
169. "Models for File Allocation in Distributed Database Systems", presented at the *Annual TIMS/ORSA Meeting*, Washington DC, May 1988.
170. "Effect of the Distributed Concurrency control on the File Allocation Problem", presented at the *TIMS/ORSA meeting*, New Orleans, May, 1987.
171. "A critique of Adaptive User Interface Design", presented at the *International Conference on Information Systems*, Pittsburgh, Dec. 1987
172. "Differences between the Entity Relationship Approach and the Relational Approach for Database Systems", panel discussion at the *Sixth International Conference on the Entity Relationship Approach*, New York, November, 1987.
173. "A Model for the Design of Distributed Databases", presented at the *ACM Computer Science Conference*, New Orleans, March 1985 (with G. Belford).

Research Grants Awarded and Under Review

1. "Deep Learning methods for COVID-19 Rentry planning and Management using Spatio Temporal Data", funded, $150,000, University of Arizona, July 2021-2022.
2. "Empirical Comparison of Manual and Digital Contact Tracing Methods", funded by RII opening Award, $25,000, September 2020-2021 (Co-PIs are Kacey Ernst and Kristen Pogreba Brown)
3. "Evaluation of Contact Tracing Digital App for University of Arizona", funded by University of Arizona, July 2020 – 2021, $85,000 (Co-PI Kacy Ernst)
4. "TIMESCAPE: A Dashboard for Rentry Planning and Management using Wifi logs and Catcard Data", funded by University of Arizona, $200,000 (co-PI Jeremy Frumkin).
5. "eNEPA-Harnessing the Power of Big Data to Catalyze Scholarly Inquiry, Increase Efficiency, and Transform Public Engagement with the National Environmental Policy Co- PI with Laura Lopez Hoffman, Marc Miller, and Stephen Bethard, funded by National Science Foundation, $1,500,000, September 2018-2022.

6. "A Data Synthesis and Knowledge Discovery System for Long Term Interdisciplinary Research on Southwest Social Change", Funded by National Science Foundation, $1,685,090, August 2018-2021, Co-PI with Barbara Mills.
7. "Population Health Surveillance in Southern Arizona using Electronic Health Records and Social Media," funded by Making Action Possible (MAP), February 2017, $7,500.
8. "Social Media Surveillance for Vector-Borne Diseases", CDC/Pima County Health Department, $50,000, February 2016-2017.
9. "Big Data Analytics to Spur Health Care Innovations", Accelerate for Success grant funded by Office of Research and Development, University of Arizona (with 1:1 matching funds from Eller/MIS department), $150,000, 2016.
10. "Development of Smart Cities using Big Data", funded by I3FOR Institute, $224,995, June 2015-2016 Co-PI with Paulo Goes.
11. "Big Data Analytics for Donor and Alumni Pattern Mining", funded by UA Alumni Association, $80,000, September 2015-2017.
12. "Hadoop Based Processing Infrastructure for INSITE center", $80,000, MicroAge Inc., Co-PI with Paulo Goes.
13. "Big Data Infrastructure to Support Large Scale Graph Mining", funded by Amazon, PI, $34,000, February 2014.
14. "NRT-DESE : Transforming Graduate Students from Apprentices to Leaders: Advancing Training in the Analysis of Large, Networked Datasets", Co-PIs (Anna Dornhaus, Ron Breiger, Neo Martinez, Barbara Mills), submitted to National Science Foundation, $2,996,664, Jan 2018-2020.
15. "Impact of Green Building Design on Human Health and Wellbeing", funded, Co-PI with Esther Sternberg, Bijan Najafi and Matthias Mehl, funded by General Services Administration, January 2013, $3,385,482, September 2014-2017.
16. "Social Media Based Analytics for Disease propagation and Risk Prediction using Big Data", PI, $50,000, funded by Parkland Center for Clinical Innovations, September 2013.
17. "Secure and Usable Provenance for Cloud-based Documents", Co-PI with Christian Colberg and Saumya Debray, funded by National Science Foundation, Sept 2013-2016, $499,403.
18. "Data Mining and Predictive Analytics for a Smart Campus", University of Arizona, $75,000, 2012-2016
19. "Information Lifecycle Management for BIG DATA", IBM, $40,000, 2013.
20. "PharmacoVigilance and Safety Signals in large Clinical Trials Datasets", $35,000 (PI: S. Ram), funded by C-Path Institute, September 2012.
21. "Data Net Federation Consortium", funded by National Science Foundation, $300,000 (PI: Sudha Ram) – this is a sub-contract from a project ($8 million grant proposal) in collaboration with the University of North Carolina, Chapel Hill, Sept 2013-2016.
22. "Asymmetric Threat Response and Analysis Program (ATRAP) IV", (Co-PI with Jerzy Rosenblit -ECE), funded by the US Army, $1,790,664, September 2010-2012.
23. "The iPlant Collaborative: Enabling a New Plant Biology", (Co-PI), National Science Foundation, $50, 000, 000, Feb 2008-2013.
24. "Secure Digital Provenance", BAA White paper submitted to Department of Homeland Security, $1, 749, 960 (Co-Pi with S. Debray and C. Colberg), August 2011.
25. "Measuring Data Quality Using Provenance", Science Foundation of Arizona, $540,000, October 2008-2012.
26. "Exploring the Strategic Impact of Universally Unique Identifiers on Enterprise Data Management and Semantic Interoperability", funded by SAP Global Research, $175,000, (November 2006-2009).
27. "Multicriterion Market Segmentation Using Genetic Algorithms", funded by Duke Teradeta center for Customer Relationship management, $5000, August 2006-2008.
28. "Semantics Interoperability in a Manufacturing Environment, funded by the National Institute of Standards and Technology, $150,000 August 2005-2008.
29. Semantics and Provenance of Bill of Materials, funded by Ford Motor Company, $150,000, 2005- 2009.
30. "Investigating Data Provenance in the Context of New Product Design and Development", funded by NSF, May 2005 – 2008, $244,401.
31. "Process and Data Management for BioInformatics", Aventis Corporation, $50,000, (With M. Tanniru), April 2004-2006.

32. "Dynamic Sourcing of Business Rules, funded by Intel Corporation, $30,000, October 2003-2005.
33. "Workflow Management at your Fingertips", $5,000, funded by Proposition 301, ITCDI, March 2003-July 2004 (with Chris Impey)
34. "Data Management for the Human Subjects Protection Program", $248,655, National Institutes of Health (NIH), Sept 2002-2005, (Co-Pis: R. Dahl, and R. Powell).
35. "INFOAGENTS: A Collaborative Intelligent Agent based Approach for Knowledge Management, funded by CIA and Raytheon, $68500, May 1999-Dec 2000.
36. The NASA South West Earth Sciences Application Center", funded by NASA, $1,499,981, February 1999-2002 (Co-PIs: R. Bales, S. Yool, C. Adams, J. Zehnder, S. Marsh et. al.).
37. "Improved Management of Public Land Grazing Allotment: An Information Resource", funded by *the International Arid Lands Consortium*, $74,821, May 1999-July 2001, (with B. Hutchinson and G. Ruyle).
38. "HyDis: A Hydrology Data Distributed Information System", funded by NASA, $1,550,000, July 1999-Aug 2003, (with S. Sorooshian, R. Bales and H. Gupta).
39. "The National Biological Information Infrastructure National Spatial Data Clearinghouse", funded by *US Department of Interior*, $21,700, Sept 1998-Dec 2000.
40. "Information Management for BioActive Agents from Dryland Biodiversity of Latin America", funded by *National Institutes of Health*, $37,500, Oct 1998-Sept 2001.
41. "Earth Observation Resources Infrastructure for Integrated Regional Assessments in the Sonoran Desert region", funded by NASA, (with Co-Is R. Schowengerdt, L. Graumlich, C. Hutchinson, and K. Thome), $321,000, Dec 1997-1998.
42. "Integrating Geographic Information Systems with Databases", National Biological Survey, (through NBS at U of A), $10,000, Sept 96-97.
43. "Semantic Model Based Access to Global Climate Change Data", funded by NASA (through Atmospheric Sciences, PI: Robert Dickinson), June 1996-open, $30,000 plus equipment and software.
44. "Intelligent Multimedia Data Management", funded by Office of Research and Development, CIA, $100,000, Sept 1997-2000.
45. "Intelligent Image Data Management", funded by Office of Research and Development, CIA, $56,000, Sept 1996-1997.
46. "Heterogeneous Data Management for Arizona-Sonora Economic Development", funded by Arizona Department of Commerce, $10,000, July 1994-July 1995.
47. "A Problem-Solving Environment for Simulation Based Ecological Systems- Analysis", (with G. Ball, B. Zeigler, R. Schlichting), funded by NSF, $12,000, May 1995- July 1996.
48. "Scientific Data Management for Massive Digital Databases", funded by NASA (through Physics and Atm. Sciences and Hydrology), $50,000, May 1994 - open. (with R. Dickinson).
49. "UNIBASE: A System for Accessing Heterogeneous Information Systems", funded by IBM Corporation, Dallas, $237,000, Nov. 1991-Oct. 1993.
50. "Semantic Modeling in Distributed Database Systems", funded by National Institute of Standards and Technology, $15,000, 1990-92.
51. "Telecommunication Strategy for Oro Valley", funded by The Town of Oro Valley, $6,475, Oct. 1992-93.
52. "Conceptual Modeling in Database Systems", funded by National Institute of Standards and Technology, $12,000, 1989-90.
53. "Distributed Databases for Administrative Computing: Strategic Directions for the Future", Provost's Office, University of Arizona, $20,000, 1991.
54. "A Knowledge Based Approach for Screening Product Innovations", funded by Marketing Science Institute, $5,000, 1989-1992.
55. "Allocation of Databases in a Distributed Database Systems", funded by Small Grants Award Program, University of Arizona, $4,200, 1990-91.
56. "Knowledge Representation in Distributed Systems", funded by State Farm Foundation for Research, $500, 1990.
57. "Design of Distributed Knowledge Based Systems", funded by Center for the Management of Information (CMI), University of Arizona, $10,400, 1989.
58. "Object-Oriented Design for Knowledge Based Systems", funded by AIRMICS (US Army), $44,750, 1989 (with J. Nunamaker).

59. "Knowledge Based Support for Information Centers", funded by IBM Corporation, Gaithersburg, $98,980, 1987-89 (with J.F. Nunamaker).
60. "The Synthesis Algorithm for Relational Database Design", funded by CMI, University of Arizona, $9,529, 1987.

Teaching

University of Illinois at Urbana Champaign

Courses taught at the Undergraduate Level:

- Database Systems
- Systems Analysis and Design

University of Arizona

Courses taught at the Undergraduate Level:

- Web and Social Media Analytics
- Big Data Analytics
- Database Systems

Courses taught at the Graduate Level: (Master's in IS, MBA, Online MIS MS, Executive MBA, PHD)

- Network Science: Theory and Applications
- Big Data Analytics
- Business Intelligence: Web Analytics
- Enterprise Data Management
- Database Design and Development for Managers (Executive MBA)
- Quantitative Research Methods in MIS
- Data Structures
- Introduction to Database Systems
- Data and Computer Communications
- Operating Systems and Computer Architecture
- Office Automation
- Advanced Topics in Database Systems
- Database Development for Managers
- Global Electronic Commerce (Executive MBA – Telesuites)

Appeared more than 50 times on the Dean's List of Excellent Teachers

Doctoral Dissertation Committees

Dissertation Advisor for MIS Doctoral Students

Buomsoo Kim (Iowa State University)
Yuanxia Li (Kennesaw State University)
Kyuhan Lee (ASU and now Korea University)
Zhengchao (Zach) Yang (Walmart Research Labs)
Karthik Srinivasan (University of Kansas)
Wenli Zhang (Iowa State University)
Yun Wang (Microsoft Research)
Jasmien Lismont (University of Leuven)

Neha Gupta (University of Warwick)
Devi Bhattacharya (SUNY Albany)
Srikar Velichety (University of Memphis)
Chang Heon Lee (Samsung Research Labs)
Wei Wei (University of Houston)
Jun Liu (North Dakota State University)
Ying Liu (California State University, Long Beach)
Yousub Hwang (University of Seoul, South Korea)
Sabah Currim (Florida State University)
Limin Zhang (North Dakota State University)
Faiz Currim (University of Iowa)
Vijay Khatri (Indiana University)
Huimin Zhao (University of Wisconsin, Milwaukee)
A. Bajaj (Carnegie Mellon University).
G. Shankar (Boston University)
V. Shailaja (Tulane University)
Divakaran Liginlal (University of Wisconsin, Madison)
Jinsoo Park (University of Minnesota, now at Seoul National University)
Prabuhdev Konana (University of Texas at Austin)
Ramesh Venkataraman (Indiana University)
David Olsen (Utah State University)
Stephen Hayne (Arizona State University)
David Carlson (University of Colorado- Boulder)

Current MIS Doctoral Students

I am serving on several other dissertation committees in MIS, CS, SIE, RNR, Bioinformatics.

MIS Minor doctoral students – Partial List

Nathan Cunicelli (BioStatistics)
Erika Austhoff (Public Health)
Chunan Li (Biomedical Engineering)
Melody Zhao (SIE)
Bonnie Hurwitz (Ecology and Evolutionary Biology)
Meng Lin (Physics and Atm. Sciences)
Michael Soo (Computer Science)
Chao-Yen Wu (Systems Engineering)
Jianyi Tao (Electrical Engineering)
Jene Hendrickson (Hydrology)
Eric Christensen (Electrical and Computer Engineering)
Yung-Hsin Wang (Electrical and Computer Engineering)
Chilgee Lee (Electrical and Computer Engineering)
Mousa Mitwassi (Systems Engineering)
Hans Demmel (Systems Engineering)

Master's Thesis Advising

Have chaired the Master's thesis committee for more than 150 students.

All theses topics have been in the area of database and knowledge base systems. Have also supervised more than 30 independent studies in the same areas.

Service
Departmental

- Annual Review Committee (2024)

- Chair, Recruiting Committee (2024)
- Graduate Studies Committee (2017-present)
- Chair, Big Data Cluster Hire recruiting Committee (2015)
- Recruiting Committee (2010-present)
- Chair, Recruiting Committee (2006-2011)
- Chair of Graduate Studies Committee and Director of Doctoral program (1992-1996, 2000- 2001)
- Graduate (PHD) Committee (1996-present)
- Promotion and Tenure Committee (1991-1996, 1999, 2000,2001-03, 2005-2010, 2012-13)
- Annual Performance Evaluation Committee (1991-1996, 1999, 2000,2001-03, 2005-2012; 2020-present)

College

- Eller Executive Committee (2024)
- Sabbatical Review Committee (2023- present)
- Search Committee, Muzzy Chair (2018)
- Faculty Status Committee (2004,2008-09, 2014-present)
- MS Business Analytics Committee (2017-18)
- Entrepreneurship center Business Plan Mentor (Ad hoc)
- Judge, Entrepreneurship Business Plan Competition (2012-14)
- MBA Field Project Mentor (2010-present)
- Dean Review Committee (2009)
- Dean Search Committee (2004, 2010, 2015, 2016)
- MIS Department Head Search Committee (2001, 2007)
- Graduate Research and Doctoral Studies Committee (2000-2004, 2008-present)
- College Advisory Committee (2000-2002)
- Economics Department Head Search Committee (2001)
- UA Enterpreneurship Program Business Plans Evaluation Team.
- Economics Department Review Committee (1998)
- Economics Department Head Search Committee (1997-1998)
- Business Plans Evaluation Team (1995, 2000)
- Research and Doctoral Program Committee (1994-1996)
- College Advisory Committee (1994-1996)
- Business Information Center Committee (1993-1997).

University

- Women of Impact Awards Committee (2024)
- Promotion and Tenure Committee, College of Science and Technology (2024)
- CGAPS Planning Committee (2020 – present)
- COVID -19 Rentry Planning Committee (2020 – Present)
- Teaching Rentry Planning Committee (2020-present)
- Faculty Search Committee, Law School (2018-19)
- Honors College Mentor (2014-present)
- Honors Showcase Judge (2016-present)
- Research and Discovery Grants Committee (2017-present)
- Bio5 (Research Grants Committee (2017)
- Data Science Strategic Planning Committee (2018)
- Civil Engineering, P&T Committee (2017)
- Research Computing Governance Committee (2016- present)
- Big Data Cluster Hire review Committee (2015)
- Informatics and Big Data Executive Committee (2015)
- Precision Medicine Advisory Committee for Arizona Health Sciences (2014-present)

- Global Initiatives Planning Committee
- Defense Institute Planning Committee
- Norton School Director Search Committee (2014)
- BIO5 and IE research grants evaluation Committee (2013, 2014)
- Sloan Foundation Fellowship Evaluation Committee (2015)
- Research Data Center Advisory Committee (2010-2013)
- University Promotion and Tenure Committee (2010-2012, Committee Chair 2011-2012)
- Research Governance Committee (2010-present)
- Big Data Advisory Committee (2013-present)
- Arizona Health Sciences Center Precision Health Advisory Committee (2013-present)
- Scientific Inquiry Committee (2010)
- Computational Biology Advisory Committee (2008-present)
- Plant Sciences Recruiting Committee (2010)
- Network Advisory Committee (2004)
- Graduate Council, 1995-2003
- Evaluation Committee, Small Grants Program (1999,2000).
- Information Technology Council (2000-2002)
- Chair, Graduate College Fellowships Committee (1998)
- Graduate College Fellowships Committee (1996, 1997)
- Search Committee Member for Metatdata Librarian (1998)
- Faculty Search Committee, School of Renewable Natural Resources (1998)
- Graduate Council Executive Committee (1997-2000)
- Evaluation Committee for International Travel Grant (1992)
- Administrative Computing Advisory Committee (1992)
- Arizona-Sonora Technical Advisory Committee (1994-2013)
- Tucson Economic Development Information Systems Committee (1992-present)
- BPA representative to the Graduate Council (1995 - 2010)

Professional Memberships

ACM (SIGMOD, SIGMIS)
IEEE Computer Society
INFORMS
AIS

Editorial Boards and Committees

- INFORMS Fellow selection Committee (2024)
- INFORMS Design Science Award, 2024
- Guest co-editor of Special Issue of MIS Quarterly on "Digital Technologies and Social Justice" , 2024.
- Peter Chen Award Committee (2024)
- Track Chair for ICIS 2023
- Editor in Chief, Journal of Business Analytics (2017-present)
- AIS Fellow Awards Committee, 2021
- AIS Nominating Committee, 2021
- Advisor, WITS Board (2020- present)
- INFORMS Design Science Award Committee Chair (2020 – 2022)
- AIS Nominating Committee (2020)
- ICIS Executive Committee (2018-2020)

- WITS Best Paper awards committee chair (2020)
- ER fellows Selection Committee (2020)
- ER Conference Workshops Co-Chair, 2020
- Committee Big Data Endowed Chair, University of Lausanne, Switzerland, 2018
-
- Co-Editor in Chief, Journal of Data Semantics, 2010-present
- Associate Editor, INFORMS IJDS (2020 – present)
- Senior Editor, JAIS (2017-present)
- Associate Editor, MISQ special issue on Health Care analytics (2017)
- AIS Senior Scholar Committee (2014-Present)
- INFORMS Design Science Award Committee (2016-present)
- CIST Best Paper Awards Committee (2015-2018)
- WITS Best paper award Committee (2014-present)
- AIS Nomination Committee, 2014
- AIS Leo Awards Selection Committee Chair, 2010, 2011
- INFORMS Design Science Award Selection Committee, 2008-2010
- ICIS Dissertation Award Co-chair, 2010
- Advisory Board, Information Systems Research, 2010-present
- Area Editor, Big Data Analytics, Journal of Information Technology Theory and Application, 2013-present
- Senior Editor, Information Systems Research, 2007-2010
- Chair, ER Steering Committee, 2007-2009
- Vice Chair, ER Conference Steering Committee, 2005-2007
- Senior Standing Advisor, WITS steering Committee, 2005-2007
- Associate Editor, Decision Sciences, 2004- 2010
- Associate Editor, International Journal of Intelligent Information Technologies, 2005-present
- Associate Editor, International Journal of Cooperative Information Systems, 2002-present
- Associate Editor: Information Systems Research 2000-2006
- Associate Editor, Journal of Database Management, 1998-present.
- Associate Editor, Journal of Information Technology Management, 1998-present.
- Associate Editor, Information Systems Frontiers, 1997-present.
- Associate Editor, Decision Support Systems Journal, 1999-present.
- Associate Editor, INFORMS Journal on Computing, 1995- 2000.
- Guest Editor, Data and Knowledge Engineering, Nov. 1999.
- Editor, IEEE Computer Society Press - Advances in Computer Science and Engineering, March 1993-2000.
- Associate Editor, Journal of Systems and Software, 1993-2010.
- Guest-Editor for special issue of Decision Support Systems, 1993.
- Editorial Board Member, Journal of Database Management 1989-1998.
- Guest Editor for special issue of IEEE Computer on "Heterogeneous Distributed Database Systems", published in December 1991.

Conferences Chaired and Program Committees

- ICIS 2023 Track Chair for Professional Development Workshops
- ICIS 2020 Health Care Analytics Track Co-Chair
- ER Conference Workshops Co Chair, 2020
- Young Researcher Mentor, Digital Health Conference, Marseilles, 2019
- ICIS Doctoral Consortium, (2019)
- AIS Executive Committee, 2017 - present
- AMCIS Doctoral Consortium faculty mentor, 2018
- Program Co-Chair, ICIS 2018
- ICIS Track Chair, 2017

- Program Committee member, IEEE Digital Health Conference (2015-present)
- Program Co-Chair, DESRIST 2013
- Program Co-Chair ER Conference 2012.
- AIS Doctoral Dissertation Awards Committee Co-Chair, 2010.
- ICIS Doctoral Consortium co-Chair, 2009
- Faculty mentor at the ER Doctoral Consortium, 2008, 2009, 2011.
- Faculty Mentor at Young Faculty and Doctoral Consortium on Enterprise Information Integration, August 2008,
- Program Co-Chair, AMCIS 2007.
- General Co-Chair, 25th International conference on Conceptual Modeling, Tucson, Nov. 2006.
- WITS program committee, 2004-present.
- Panels Chair, International Conference on Conceptual Modeling and the ER Approach, 2001, Japan
- Senior Program Committee member IEEE Conference on Health Informatics (2016-present)
- Senior PC member, ACM Digital Health Conference (2016-present)
- Program Committee member MetaModeling conference 2001
- Program Committee member CODAS - 2001
- Program Committee member RIDE'2002
- Program Committee member INFORMS IST conference 2001
- Tutorials Chair, AIS Conference, 2000, Los Angeles.
- Steering Committee Member, ER Conference, 1998-present
- Program Committee Member, ICIS, 1999-2009.
- Program Committee Member, WITS, 1991- present.
- Program Committee Member ER Conference 1999-present.
- ICIS Doctoral Consortium Reviewer, 1999.
- Program Committee Member, Workshop on Process Modeling, 1998-2000.
- Program Co-Chair for ER conference, 1998, Singapore.
- Steering Committee Member and Senior Advisor, WITS 1991- present.
- General Conference Chair, International Conference on management of Data (SIGMOD97), Tucson, 1997.
- General Conference Chair for Fifth International Conference on Data and Knowledge Systems in Manufacturing and Engineering, Phoenix, AZ, 1996.
- Program Chair, International Conference on Data and Knowledge Systems in Manufacturing and Engineering, Hong Kong, 1995.
- Co-Chair for 1995 Workshop on Information Technology and Systems, Amsterdam, Dec. 1995.
- Member of DSI Elwood S. Buffa Doctoral Dissertation Competition, 1995.
- Chair for minitrack on "Information Sharing and Knowledge Discovery in Large Scientific Databases", at the 28th Hawaii International Conference on System Sciences, Mauii, HI, Jan. 1995.
- Chair for minitrack on "Information Sharing and Knowledge Discovery in Large Scientific Databases", at the 27th Hawaii International Conference on System Sciences, Mauii, HI, Jan. 1994.
- Program Chair for International Conference on Data and Knowledge Systems in Manufacturing and Engineering, Hong Kong, 1994.
- Program Committee Member, International Conference on the ER Approach, 1993, 1994, 1995.
- Member of Program Committee, Workshop on Information Technology and Systems, Dec. 1993.
- Chair of Minitrack on "Current Topics in Database Research", Hawaii International Conference on Systems Sciences, Maui, January 1993.
- Member of Program Committee, Conference on Management of Data, New Delhi, India, November 1995.
- Member of Program Committee, International Conference on Data and Knowledge Systems in Manufacturing and Engineering, Lyons, France, March 1992.
- Member of Program Committee, International Conference on Data Engineering, Karlsruhe, Germany, April 1993.
- Member of Program Committee, RIDE Workshop on Interoperability Among Systems, Karlsruhe, Germany, April 1993.
- Co-Chair of Workshop on Information Technology and Systems - WITS-91, Sloan School of Management, MIT, Dec 14-15, 1991.
- Member of Program Committee for Workshop on Information Technology and Systems - WITS-92, Dallas, TX, Dec. 1992.

- Member of Program Committee for the International Conference on the Entity Relationship Approach, Vienna, Austria, Oct. 1992.
- Member of Program Committee for the 13th International Conference on Information Systems, Dallas, TX, Dec. 1992.
- Member of Program Committee for the 10th International Conference on Information Systems, Boston, Dec. 1989.
- Member of Program Committee for the 11th International Conference on Information Systems, Copenhagen, Dec. 1990.
- Member of Program Committee for the First International Workshop on Interoperability among Heterogeneous Databases, Kyoto, Japan, May 1991.

Manuscript and Proposal Reviewing

- Journals: Information Systems Research, Journal of Business Analytics, Journal of AIS, IEEE Journal of Biomedical and Health Informatics, PLOS One, , Information Systems Research, IEEE Computer, IEEE Expert, Communications of the ACM, ACM Computing Surveys, IEEE Transactions on Knowledge and Data Engineering, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Engineering Management, Journal of Decision Support Systems, Journal of MIS, Journal of Systems and Software, Journal of Database Administration, Interfaces, Management Science, MIS Quarterly, Software Practices and Experience, International Journal of Man-machine studies, IEEE Transactions on Engineering Management, IEEE Transactions on Software engineering, IEEE Transactions on parallel and Distributed Systems.

- Funding Agencies: National Science Foundation, NASA, NIH.

- Conferences: ICIS, WITS, ACM SIGMOD, IEEE Digital health, Conference on Data Engineering, International Conference on Distributed Computing Systems, International Conference on Very Large Data Bases, International Conference on Information Systems, Hawaii International Conference on System Sciences, ER Conference, International Conference on Data Engineering.

- Book Publishers: Macmillan Publishers, W.C. Brown Publishers, Science Research Associates, Merrill Publishing Company, The Dryden Press, Benjamin Cummings, Boyd and Fraser, McGraw Hill.