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EDUCATIONAL BACKGROUND

Ph.D. (Business, focus: Information Systems), University of California, Berkeley, 1988.
M.S. (Computer Science), University of California, Berkeley, 1986.
Post-Graduate Diploma in Management, Indian Institute of Management, Ahmedabad.
B.Tech. (Electrical Engineering), Indian Institute of Technology, New Delhi.

Ph.D. DISSERTATION

Transaction Management Issues in Database Systems, 1988, UC Berkeley.
(Advisers: Professors Michael Stonebraker and Arie Segev)

PROFESSIONAL AND ACADEMIC EXPERIENCE

Professor of Information Systems (2004 -), Smeal College of Business, Pennsylvania State University, University Park, PA; *Associate Professor* (2002-2004); *Tenured*.

Visiting Professor, Eindhoven University of Technology, Netherlands, August - October, 2008;
Tsinghua University (Sept.-Nov. 2015); QUT Brisbane (Jan – Feb. 2016; SMU Singapore (March 20016).

Member of Technical Staff, Database Systems Research Department, Bell Laboratories, Murray Hill, NJ, August 2000-July 2001. (On leave from University of Colorado, Boulder.)

Assistant (1994-96) and *Associate Professor* (1996-2002) of *Information Systems*, College of Business and Administration, University of Colorado, Boulder.

Visiting Professor, Sun Microsystems, Broomfield, Co. May – August, 1999.

Assistant Professor of Information Systems, Johnson Graduate School of Management, Cornell University, Ithaca, NY (1988-1994).

Systems Executive, International Computers Indian Manufacture, New Delhi (October 1982 - August 1984). Implementation of software packages for customers and training.

Assistant Manager, Citibank, N.A., Bombay (May 1981 - October 1982).

Systems Engineer Trainee, Tata Burroughs, Bombay (May 1980 - April 1981).

AWARDS, HONORS, GRANTS

- Faculty Fellow, Social Science Research Institute, Penn State, 2017.
- SC&IS Research Fellowship, Smeal College of Business, 2016-19.
- HP Labs Innovation Research Award, \$69,000. 2012-13.
- HP Labs Research Grant, Streamlining Patient Experience, \$42,000. 2011-12.
- Center for Integrated Healthcare Delivery Systems (CIHDS), \$5000. June 2011.
- NSF Grant for research on security scoring for web applications (member of a team awarded \$99,000 for exploratory research), July 2003.
- IBM Corp, \$50,000 grant for research on "Information Sharing Architectures in Supply Networks," November 2002.
- Best paper award at the *Sixth INFORMS Conference on Information Systems and Technology (CIST 2001)*, Miami Beach, Fl, November 2001.
- Charles Guiney Research Scholar, University of Colorado, 1998-2001.
- Lattanze Center for Executive Studies in Information Systems Award, 1998.
- Microsoft Instructional Grant, 1997, 1998.
- National Science Foundation *Research Initiation Award*, \$60,000, 1991-1993.
Sole principal investigator.
- Arthur Andersen Doctoral Dissertation Fellowship, 1987-88.
- University Fellowship, University of California, Berkeley, 1984-1986.
- Outstanding Graduate Student Instructor Award, UC Berkeley, 1986.
- Industrial Scholarship Award for Academic Excellence, IIM Ahmedabad, 1980.
- Award for Top 100 (#43) ranking in All-India Joint Entrance Exam for IIT, 1973.
- National Science Talent Search Scholarship Award, 1973.

MEMBERSHIPS

Association for Computing Machinery (ACM), IEEE (Senior member)

FIELDS OF EXPERTISE

Business process management, E-commerce, database management systems, Health information systems, intelligent systems, data mining, Blockchain, deep learning.

TEACHING EXPERIENCE

NBA605: Expert Systems, 3 credits (Cornell University).

NBA606, MIS436: Business Data Communications, 3 credits (Cornell University, Penn State)

INFS6340: Intelligent Systems, 3 credits (University of Colorado)

INFS2010: Introduction to Visual Programming, 3 credits (University of Colorado)

INFS4030/5030: Computer Networks Design and Management, 3 credits (Colorado, Penn State)

INFS3020, MIS431: Database systems, 3 credits (Colorado, Penn State)

MIS434: Internet technologies (Penn State)

SCIS505: Management Information Systems (Graduate level, Penn State)

MIS479W: ERP Systems/Management of Operations Information (Penn State)

PUBLICATIONS

Peer reviewed Journals

1. A. Kumar, R. Liu and Z. Shan. Is Blockchain a Silver Bullet for SupplyChain Management? Technical Challenges and Research Opportunities. *Decision Sciences*. (Forthcoming 2019) <https://onlinelibrary.wiley.com/doi/epdf/10.1111/deci.12396>
2. K. Zhao, K. Scheibe, J. Blackhurst, and A. Kumar: Supply Chain Network Robustness Against Disruptions: Topological Analysis, Measurement, and Optimization. *IEEE Transactions on Engineering Management* 66(1): 127-139 (2019)
3. F. Yang, Bu Zhong, A. Kumar, S-M Chow and A. Ouyang. Exchanging Social Support Online: A Longitudinal Social Network Analysis of Irritable Bowel Syndrome Patients' Interactions on a Health Forum. *Journalism & Mass Communication Quarterly*, 95(4), 1033-1057, 2018.
4. David Knuplesch, Manfred Reichert, Akhil Kumar: A framework for visually monitoring business process compliance. *Inf. Syst.* 64: 381-409 (2017).
5. A. Kumar and R.R.Barton. Controlled violation of temporal process constraints – Models, algorithms and results. *Inf. Syst.* 64: 410-424 (2017).
6. Rik Eshuis and Akhil Kumar. Converting Unstructured into Semi-Structured Process Models. *Data Knowl. Eng.* 101: 43-61(2016).
7. Hsin-Jung Cheng and Akhil Kumar. Process Mining on Noisy Logs - Can log sanitization help to improve performance? *Decision Support Systems*, Volume 79, 138-149 (November 2015).
8. Kang Zhao and Akhil Kumar, Who Blogs What: Understanding the Publishing Behavior of Bloggers, *World Wide Web*, (5-6): 621-644 (2013).
9. Akhil Kumar, Wen Yao, Chao-Hsien Chu, Flexible Business Process Compliance with Semantic Constraints using Mixed-Integer Programming, *INFORMS Journal on Computing*, Summer 2013; Vol. 25, No. 3.
10. Z. Shan and Akhil Kumar, Optimal Adapter Creation for Process Composition in Synchronous vs. Asynchronous Communication, *ACM Transactions on Management Information Systems*, Volume 3, No. 2, July 2012.
11. Wen Yao and Akhil Kumar, CONFlexFlow: Integrating Flexible Clinical Pathways into Clinical Decision Support Systems using Context and Rules, *Decision Support System*, 55 (2): 499–515(2013).

12. Akhil Kumar and Wen Yao, Design and Management of Flexible Process Variants using Templates and Rules, *Computers in Industry (CII)* 63(2):112-130 (2012).
13. Z. Huang and A. Kumar, A Study of Quality and Accuracy Tradeoffs in Process Mining, *INFORMS Journal on Computing*, Vol. 24, No. 2, Spring 2012, 311-327.
14. Kang Zhao, A. Kumar, and J. Yen, Achieving High Robustness in Supply Distribution Networks by Rewiring, *IEEE Transactions on Engineering Management*, Vol. 58, No. 2, May 2011, 347-362.
15. Kang Zhao, A. Kumar, T.P. Harrison and J. Yen, Analyzing the Resilience of Complex Supply Network Topologies against Random and Targeted Disruptions, *IEEE Systems Journal*, Vol. 5., No. 1, March 2011, 28-39.
16. W.M.P van der Aalst, K. van Hee, J.M. van der Werf, A. Kumar and M. Verdonk, "Conceptual Model for online Auditing," *Decision Support Systems*, 50 (2011) 636–647, February 2011.
17. R. Liu and A. Kumar, "Leveraging Information Sharing to Configure Supply Chains," *Information Systems Frontiers*. 13(1): 139-151 (2011), March 2011.
18. R. Eshuis and A. Kumar, "An Integer Programming based Approach for Verification and Diagnosis of Workflows," *Data and Knowledge Engineering*, 69 (2010) 816–835, August 2010.
19. R. Liu, A. Kumar and W.M.P. van der Aalst, "A formal modeling approach for supply chain event management," *Decision Support Systems* 43, 3 (April 2007) 761-778.
20. J. Wainer, A. Kumar and P. Barthelmess, "DW-RBAC: A Formal Security Model of Delegation and Revocation in Workflow Systems," *Information Systems*, Volume 32, Issue 3, May 2007, Pages 365-384.
21. S. Sun, A. Kumar, J. Yen, "Merging workflows: A new perspective on connecting business Processes," *Decision Support Systems*, Volume 42, Issue 2, November 2006, Pages 844-858.
22. Kumar, A. and J. Wainer, "Meta workflows as a Control and Coordination Mechanism for Exception Handling in Workflow Systems," *Decision Support Systems*, 40 (July 2005) 89–105.
23. H.M.W. Verbeek, W.M.P. van der Aalst and A. Kumar, XRL/Woflan, "Verification and Extensibility of an XML/Petri-net-based language for inter-organizational workflows," *Information Technology and Management*, 5 (1-2): 65-110, January - April, 2004.

24. J. Wainer, P. Barthelmeß and A. Kumar, "W-RBAC - A workflow security model incorporating controlled overriding of constraints," *International Journal on Cooperative Information Systems*, Vol. 12, No. 4 (2003) 455-485.
25. W.M.P. van der Aalst and A. Kumar, "XML Based Schema Definition for Support of Inter-Organizational Workflow," *Information Systems Research*, Vol. 14, No. 1, 23-47, March 2003.
26. A. Basu and A. Kumar, "Research Commentary: Workflow Management Systems in e-Business," *Information Systems Research*, Vol. 13, No. 1, March 2002, 1-14.
27. Kumar, A., W.M.P. van der Aalst and H.M.W. Verbeek, "Dynamic Work Distribution in Workflow Management Systems: How to balance quality and performance?" *Journal of MIS*, Winter 2001-2002, Vol. 18, No. 3, 157-193.
28. Kumar, A., and Zhao, L., "Workflow Support for Electronic Commerce Applications," *Decision Support Systems* 32 (2002) 265-278, January 2002.
29. W.M.P. van der Aalst and A. Kumar, "A Reference Model for Team-Enabled Workflow Management Systems," *Data and Knowledge Engineering* 38 (2001) 335-363, September 2001.
30. Kumar, A., "An Efficient Algorithm for Solving the Partial Sum Query Problem," *Information Sciences*, 137 (2001) 245-258, Vol. 137, No. 1-4, September 2001.
31. Zhao, L., Kumar, A., and Stohr, E. A., "Workflow-centric Information Distribution through Email," *Journal of Management Information Systems*, Winter 2000-2001, Vol. 17, No. 3, 45-72.
32. Kumar, A., "An Efficient SuperGrid Protocol for High Availability and Load Balancing" *IEEE Transactions on Computers*, Volume 49, No. 10, October 2000, 1126-1133.
33. Kumar, A., and Zhao, L., "Dynamic Routing and Operational Controls in a Workflow Management System," *Management Science*, Volume 45, No. 2, February 1999, 253-272.
34. Kumar, A. and Olmeda, I., "A Study of Composite classifiers for knowledge discovery," *INFORMS Journal on Computing*, Volume 11, No. 3, Summer 1999, 267-277.
35. Kumar, A., "A New algorithm for Distributed Consensus," *Distributed and Parallel Databases*, 7(4), 415-427 (1999).
36. Zhao, L., and Kumar, A., "Data Management Issues for Large Scale, Distributed Workflow Systems on the Internet," *DATA BASE* (invited paper), Vol. 29, No. 4, Fall 1998.

37. Kumar, A. and N. Adly, "HPP: A Reliable Causal Broadcast Protocol for Large Scale Replication in Wide Area Networks," *Computer Journal*, Volume 41, No. 2, 1998.
38. Kumar, A., "New Techniques for data reduction in database systems for knowledge discovery applications," *Journal of Intelligent Information Systems*, 10:1, 31-48 (1998).
39. Kumar, A., W. Muhanna and R. Patterson, " Mean-Variance Analysis of the Performance of Spatial Clustering Methods," *International Journal of Geographical Information Sciences*, Vol. 12, No. 3, 269-289, 1998.
40. Kumar, A. and Malik, K., "Optimizing the Costs of Hierarchical Quorum Consensus," *Acta Informatica*, Vol. 33, No. 3, May 1996, 255-275.
41. Kumar, A., V. Rao and H. Soni, "An Empirical Comparison of Neural Networks and Logistic Regression Methods, " *Marketing Letters* 6:4 (1995): 251-263.
42. Kumar, A., "G-Tree: A New Data Structure for Organizing Multi-dimensional Data," *IEEE Transactions on Knowledge and Data Engineering*, Vol. 6, No. 2, April 1994, 341-347.
43. Kumar, A. and Segev, A., "Cost and Availability Tradeoffs in Replicated Data Concurrency Control," *ACM Transactions on Database Systems*, Vol. 18, No. 1, March 1993, 102-131.
44. Kumar, A., "Hierarchical Quorum Consensus: A New Algorithm for Managing Replicated Data," *IEEE Transaction on Computers*, September 1991, 996-1004.
45. Kumar, A. and Cheung, S.Y., "A High Availability Sqrt(N) Hierarchical Grid Algorithm for Replicated Data," *Information Processing Letters*, December 1991, 311-316.
46. Kumar, A. and Malik, K., "Voting Mechanisms in Distributed Systems," *IEEE Transactions on Reliability*, December 1991, 593-600.
47. Kumar, A. and Stonebraker, M., "Performance Considerations for an Operating System Transaction Manager," *IEEE Transactions on Software Engineering*, Vol. 15, No. 6, June 1989, 705-714.

Peer-reviewed International Conference Proceedings

1. S. Chow, A. Kumar, A. Ouyang, et al. What can Physicians learn from Social Forums: Insights from an on-line Self Help and Support Group? 2017 IEEE 7th International Conference on Computational Advances in Bio and Medical Sciences (ICCABS), Orlando, FL, October 2017.
2. Chen Qian, Lijie Wen, Jianmin Wang, Akhil Kumar and Haoran Li. Structural Descriptions of Process Models Based on Goal-Oriented Unfolding. CAiSE 2017: 397-412.

3. Akhil Kumar and Veeresh Thummadi. A Sequence Analytics Approach for Detecting Handoff Patterns in Workflows: An Exploratory Case Study on the Volvo IT Incident Management Process. 12th International Conference, DESRIST 2017, Karlsruhe, Germany, May 30 – June 1, 2017 (Research in Progress Paper).
4. Akhil Kumar, Paronkasom Indradat. Optimizing Process Model Redesign. ICSOC 2016: 39-54
5. Jisheng Pei, Lijie Wen, Xiaojun Ye, Akhil Kumar, Zijing Lin. Transition Adjacency Relation Computation Based on Unfolding: Potentials and Challenges. OTM Conferences 2016: 61-79
6. Shuhao Wang, Lijie Wen, Akhil Kumar, Jianmin Wang, Jianwen Su. ExRORU: A New Approach to Characterize the Behavioral Semantics of Process Models. OTM Conferences 2016: 318-326
7. Akhil Kumar, Sharat R. Sabbella, Russell R. Barton. Managing controlled violation of temporal process constraints. BPM 2015: 280-296.
8. David Knuplesch , Manfred Reichert , Akhil Kumar. Visually Monitoring Multiple Perspectives of Business. BPM 2015: 263-279.
9. Rong Liu and Akhil Kumar, Impact of Socio-Technical Network on Process Performance, 10th IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom 2014), Miami, Florida, October 2014.
10. Akhil Kumar and Kang Zhao, Making Sense of a Healthcare Forum – Smart keyword and user navigation graphs, Thirty Fourth International Conference on Information Systems, Milan, December 2013.
11. David Knuplesch, Manfred Reichert, Linh Thao Ly, Akhil Kumar , Stefanie Rinderle-Ma, Visual Modeling and Semantics of Business Process Compliance Rules with the Support of Multiple Perspectives, ER 2013, Hong Kong, November 2013.
12. Jerry Rolia, Wen Yao, Sujoy Basu, Wei-Nchih Lee, Sharad Singhal, Akhil Kumar and Sharat Sabbella, Tell Me What I Don't Know - Making the most of Social Health Forums, IEEE International Conference on Healthcare Informatics (ICHI), Philadelphia, September 2013.
13. Akhil Kumar, R.M. Dijkman and Minseok Song, Optimal resource assignment in workflows for maximizing cooperation, International BPM Conference, Beijing, F. Daniel, J. Wang, and B. Weber (Eds.): BPM 2013, LNCS 8094, 235–250, 2013.
14. Wen Yao, Jerome A. Rolia, Sujoy Basu, Sharad Singhal, Akhil Kumar: A Context-Aware framework for patient Navigation and Engagement (CANE). CollaborateCom 2012: 316-325.

15. Wen Yao, Akhil Kumar, Jerome A. Rolia, Sujoy Basu, Sharad Singhal: Towards a Formal Process-driven Framework for Streamlining Patient-centric Care. CAiSE Forum 2012: 179-186.
16. Wen Yao and Akhil Kumar, Integrating Clinical Pathways into CDSS using Context and Rules – A Case Study in Heart Disease, 2nd ACM SIGHT International Health Informatics Symposium (IHI 2012), Miami, FL, January 2012, 611-620.
17. Wil M. P. van der Aalst, et al. :Process Mining Manifesto. Business Process Management Workshops (1) 2011: 169-194.
18. A. Kumar, A.K.Sen, M. H. Sundari and A. Bagchi. Semantic Notions of Weakly Correct AND/XOR Business Workflows based on Partial Synchronization. IEEE Services Computing Conference, IEEE SCC 2011: 128-135, July 2011, Washington, DC.
19. Zhe Shan, Akhil Kumar and Rong Liu. Creating a Minimal Adapter for Multiple Business Process Composition. Proceedings of the Twentieth Workshop on Information Technology and Systems (WITS 2010), St. Louis, December 11-12, 2010, 272-277. (Best Paper Award Nominee)
20. Kang Zhao, Akhil Kumar, Massimiliano Spaziani and John Yen. Who Blogs What: Understanding Behavior, Impact and Types of Bloggers. Proceedings of the Twentieth Workshop on Information Technology and Systems (WITS 2010), St. Louis, December 11-12, 2010, 176-181.
21. A. Kumar, Wen Yao, Chao-Hsien Chu and Zang Li. Ensuring Compliance with Semantic Constraints in Process Adaptation with Rule-Based Event Processing. The International RuleML Symposium on Rule Interchange and Applications, RULEML-2010, Washington, DC, October 2010. Springer, 50-65. (Best Paper Award Nominee)
22. Zhe Shan , Akhil Kumar, Paul Grefen. Towards Integrated Service Adaptation – A New Approach Combining Message and Control Flow Adaptation. IEEE International Conference on Web Services, ICWS 2010: 385-392.
23. Kang Zhao, A. Kumar, and John Yen. Effect of topology on the robustness of supply networks – metrics and results. *Proceedings of the Nineteenth Workshop on Information Technology and Systems (WITS 2009)*, Phoenix, December 14-15, 2009, 97-102.
24. Wen Yao, Chao Chu, A. Kumar, and Zang Li. "Using Ontology to Support Context Awareness in Healthcare," *Proceedings of the Nineteenth Workshop on Information Technology and Systems (WITS 2009)*, Phoenix, December 14-15, 2009, 43-48.
25. A. Kumar and W. Yao, "Process Materialization using Templates and Rules to Design Flexible Process Models," *The International RuleML Symposium on Rule Interchange and Applications, RULEML-2009*, Las Vegas, November 2009, 122-136.

26. A. Kumar, Z. Shan. Algorithms Based on Pattern Analysis for Verification and Adapter Creation for Business Process Composition, *CoopIS'08, OTM Conferences*, Monterrey, Mexico, November 2008, 120-138.
27. A. Kumar and R. Liu. A Rule-Based Framework to Design Compliant Business Processes Using Role Patterns, *The International RuleML Symposium on Rule Interchange and Applications, RULEML-2008*, Orlando, Florida: October 30-31, 2008, 58-72.
28. Z. Huang and A. Kumar. New Quality Metrics for Evaluating Process Models, *Proceedings BPM 2008 International Workshops*, Milan, Italy, Sept. 2008, 164-170, Springer LNCS.
29. R. Liu, A. Kumar, and W.M.P. van der Aalst. Managing Supply Chain Events to Build Sense-and-Response Capability. In D. Straub and S. Klein, editors, *Proceedings of International Conference on Information Systems (ICIS 2006)*, Milwaukee, Wisconsin, December 2006.
30. Liu, R., Kumar, A., and Stenger, A. J. 2006. Simulation results for supply chain configurations based on information sharing. In *Proceedings of the 37th Conference on Winter Simulation* (Monterey, California, December 03 - 06, 2006). L. F. Perrone, B. G. Lawson, J. Liu, and F. P. Wieland, Eds. Winter Simulation Conference. Winter Simulation Conference, 627-635.
31. A. Kumar, "Mining and Querying Business Process Logs," KDD Workshop on Data Mining for Business Applications (affiliated with KDD conference), August 2006, Philadelphia.
32. J. Wang and A. Kumar, "Exception Handling Using Task Substitution and Delegation in Resource-Driven Workflow Systems," *Proceedings of 15th Annual Workshop on Information Technologies and Systems (WITS 2006)*, Las Vegas, December 10-11, 2005, 147-152.
33. R. Liu and A. Kumar, "An Analysis and Taxonomy of Unstructured Workflows," *Third International Conference on Business Process Management (BPM 2005)*, Nancy, France, Springer-Verlag, Lecture Notes in Computer Science, September 2005, 268-284.
34. J. Wang and A. Kumar, "A Framework for Document-Driven Workflow Systems," *Third International Conference on Business Process Management (BPM 2005)*, Nancy, France, Springer-Verlag, Lecture Notes in Computer Science, September 2005, 285-301.
35. J. Wainer and A. Kumar, "A fine grained, controllable user-to-user delegation method in RBAC," *Proceedings of the 10th ACM Symposium on Access Control Models and Technologies*, Stockholm, June 2005, 59-66 (ACM Press).
36. R. Liu, A. Kumar and W. v.d. Aalst, "A formal modeling approach for supply chain management," *Proceedings of 14th Annual Workshop on Information Technologies and Systems (WITS 2004)*, Washington, D.C., December 11-12, 2004, 110-115.

37. H.H. Bi and A. Kumar, 2004. "A canonical form for the definition, querying, and manipulation of Workflows," *Proceedings of the Fourteenth Workshop on Information Technology and Systems (WITS 2004)*, Washington, D.C., December 11-12, 2004, 26-31.
38. S. Sarnikar, J. L. Zhao, and A. Kumar, "Organizational Knowledge Distribution: An Experimental Evaluation," *Proceedings of the Tenth Americas Conference on Information Systems*, New York City, August 2004. (**Best Paper Award Nominee**)
39. R. Liu and A. Kumar, "Leveraging Information Sharing to Increase Supply Chain Configurability," *Proceedings of the Twenty-Fourth International Conference on Information Systems*, Seattle, December 2003.
40. A. Kumar, J. Wainer, Z. Zhang, "Meta-workflows and ESP: A Framework for Coordination, Exception Handling, and Adaptability in Workflow Systems," *CAiSE'03 Workshop on Web Services, e-Business, and the Semantic Web (WES)*, Austria, June 2003. (Proceedings published by Springer-Verlag).
41. W.M.P. van der Aalst, A. Kumar, H.M.W. Verbeek, "Organizational Modeling in UML and XML in the context of Workflow Systems," *ACM Symposium on Applied Computing*, Melbourne, FL, March 2003.
42. Kumar, A., "Organizing an Optimal Hierarchy of Web Pages Based on Access Frequency," *Workshop on Information Technology and Systems (WITS)*, 181-186, Barcelona, Spain, December 2002.
43. Kumar, A., and Zhao, L., "EROICA: A Rule-based Approach to Organizational Policy Management in Workflow Systems," *Proceedings of WAIM'02 Conference*, Beijing, August 2002. (Published by Springer-Verlag: X. Meng, J. Su, and Y. Wang (Eds.) LNCS 2419, pp. 201–212, 2002, Berlin Heidelberg 2002).
44. W.M.P. van der Aalst, H.M.W. Verbeek, and A. Kumar, "XRL/Woflan: Verification and extensibility of an XML/Petri-net based language for inter-organizational workflows," *Proceedings of the 6th Informis Conference on Information Systems and Technology (CIST 2001)*, Miami Beach, FL, 30-45, November 2001. (**Best Paper Award recipient**)
45. V. Christophides, R. Hull, G. Karvounarakis, A. Kumar, G. Tong, M. Xiong: Beyond Discrete E-Services: Composing Session-Oriented Services in Telecommunications. *TES 2001*: 58-73.
46. V. Christophides, R. Hull, A. Kumar, "Querying and Splicing of Workflows," *Sixth International Conference on Cooperative Information Systems (CoopIS 2001)*, In Cooperation with VLDB 2001, Trento, Italy, September 2001, 386-402.
47. W.M.P. van der Aalst, H. M. W. Verbeek and A. Kumar, "Verification of XRL: An XML-

- based Workflow Language,” *Proceedings of the Sixth International Conference on Computer Supported Cooperative Work in Design*,” 427-432, London, Ontario, Canada, July 2001.
48. Zhao, L., Kumar, A., and E. Stohr, “A Dynamic Grouping Technique for Distributing Codified-Knowledge in Large Organizations,” *Workshop on Information Technology and Systems (WITS)*, Sydney, Australia, December 2000.
 49. Hull, R., Kumar, A., and Simeon, J., “Smart Supply Web: An application of Web-based data and workflow mediation, *Workshop on Technologies for E-Services (VLDB-TES Workshop)*, Cairo, September 2000.
 50. Kumar, A., and T. Camp, "A New Matching Algorithm for Managing Location Information in Mobile Computing," *Proceedings of the 19th IEEE International Conference on Performance, Computing, and Communications (IPCCC 2000)*, Phoenix, Arizona, February 2000.
 51. Kumar, A., "A Framework for handling delegation in Workflow Management Systems," *Workshop on Information Technology and Systems (WITS)*, Charlotte, December 1999.
 52. Zhao, L., Kumar, A., and E. Stohr, “A Workflow-centric Study of Organizational Knowledge Distribution,” *33rd Hawaii International Conference on Systems Sciences*, January 2000.
 53. Kumar, A., and Zhao, L., “XRL: An Extensible Routing Language for Electronic Commerce Applications,” *International Conference on Telecommunications and Electronic Commerce (ICTEC)*, Nashville, TN, November 1998.
 54. Kumar, A., "A randomized algorithm for distributed consensus," *IEEE Symposium on Reliable Distributed Systems*, Purdue University, W. Lafayette, IN, October 1998.
 55. Kumar, A., and Zhao, L., "Architectures and Techniques for Large-Scale, Distributed Workflow Management on the Internet," *Workshop on Information Technology and Systems, Atlanta*, December 1997.
 56. Kumar, A., and I. Olmeda, "Hybrid Classifiers for Knowledge Discovery," *Proceedings INFORMS Conference on Information Systems and Technology*, San Diego, May 1997.
 57. Kumar, A., and Zhao, L., "A Framework for Dynamic Routing and Operational Integrity Controls in a Workflow Management System," *29th Hawaii International Conference on Systems Sciences*, January 1996, 492-501.
 58. Adly, N., and Kumar, A., "HPP: A Hierarchical Propagation Protocol for Large Scale Replication in Wide Area Networks," *Seventh International Conference on Computing and Information*, Peterborough, ON, Canada, July 1995.

59. Kumar, A., "A Study of Spatial Clustering Techniques," *Lecture notes in Computer Science 856*, Springer-Verlag, September 1994, 57-71. (Proceedings of the Fifth International DEXA conference, Athens, Greece.)
60. Cheung, S.Y. and Kumar, A., "Efficient Solution Techniques for the Quorumcast Problem," *Proceedings of IEEE Infocom '94*, Toronto, Canada, 840-847.
61. Kumar, A., M. Rabinovich and R. Sinha, "A Performance Study of General Grid Structures for Replicated Data," *IEEE International Conference on Distributed Computing Systems*, "Pittsburgh, May 1993, 178-185.
62. Kumar, A., "Techniques for Indexing Large Numbers of Rules and Constraints in a Database System," *Proceedings of the Fourth International Conference on Database and Expert System Applications (DEXA)*, Valencia, Spain, September 1992, 65-71 (Springer-Verlag Publishers).
63. Kumar, A., "A Randomized Voting Algorithm," *Proceedings of the Eleventh IEEE International Conference on Distributed Systems*, Arlington, TX, May 1991, 412-419.
64. Kumar, A., "A New Approach for Conflict Resolution and Rule Processing in a Knowledge-Based System," *Proceedings of the Eleventh International Conference on Information Systems*, Copenhagen, Denmark, December 1990, 15-23.
65. Kumar, A., "Performance Analysis of a Hierarchical Quorum Consensus Algorithm for Replicated Objects," *Proceedings of the Tenth IEEE International Conference on Distributed Computing Systems*, Paris, France, June 1990, 378-385.
66. Kumar, A., "An Analysis of Borrowing Policies for Escrow Transactions in a Replicated Data Environment," *Proceedings of the Sixth IEEE International Conference on Data Engineering*, Los Angeles, CA, February 1990, 446-454.
67. Kumar, A., "A Crash Recovery Algorithm Based on Multiple Logs that Exploits Parallelism," *Proceedings of the Second IEEE Symposium on Parallel and Distributed Processing*, Dallas, TX, December 1990, 156-159.
68. Kumar, A. and Segev, A., "Optimizing and Evaluating Algorithms for Replicated Data Concurrency Control," *Proceedings of the Ninth IEEE International Conference on Distributed Computing Systems*, Newport Beach, CA, June 1989, 101-109.
69. Kumar, A. and Segev, A., "Optimizing Voting-Type Algorithms for Replicated Data," *Lecture Notes in Computer Science*, Vol. 303, J.W. Schmidt, S. Ceri, and M. Misakoff (eds.), Springer-Verlag, March 1988, 428-442. (Proceedings of the First International Conference on Extending Database Technology, Venice, Italy.)

70. Kumar, A. and Stonebraker, M., "Semantics Based Transaction Management Techniques for Replicated Data," *Proceedings 1988 ACM SIGMOD (Special Interest Group on Management of Data) Conference*, Chicago, IL, June 1988, 117-125.
71. Kumar, A. and Stonebraker, M., "Performance Evaluation of an Operating System Transaction Manager," *Proceedings of the Thirteenth International VLDB (Very Large Databases) Conference*, Brighton, U.K., September 1987, 473-481.

Books and Edited Volumes

1. Akhil Kumar. *Business Process Management*. Routledge Press, 2018 (forthcoming).
2. Josep Carmona, Gregor Engels, Akhil Kumar. Business Process Management - 15th International Conference, BPM 2017, Barcelona, Spain, September 10-15, 2017, Proceedings. Lecture Notes in Computer Science 10445, Springer, 2017.
3. Josep Carmona, Gregor Engels, Akhil Kumar. Business Process Management Forum - BPM Forum 2017, Barcelona, Spain, September 10-15, 2017, Proceedings. Lecture Notes in Business Information Processing 297, Springer 2017.
4. Robert Clarisó, Henrik Leopold, Jan Mendling, Wil M. P. van der Aalst, Akhil Kumar, Brian T. Pentland, Mathias Weske: Proceedings of the BPM Demo Track and BPM Dissertation Award co-located with 15th International Conference on Business Process Modeling (BPM 2017), Barcelona, Spain, September 13, 2017.
5. Robert Meersman, Tharam S. Dillon, Pilar Herrero, Akhil Kumar, Manfred Reichert, Li Qing, Beng Chin Ooi, Ernesto Damiani, Douglas C. Schmidt, Jules White, Manfred Hauswirth, Pascal Hitzler, Mukesh K. Mohania. On the Move to Meaningful Internet Systems: OTM 2011 - Confederated International Conferences: CoopIS, DOA-SVI, and ODBASE 2011, Hersonissos, Crete, Greece, October 17-21, 2011, Proceedings, Part I. Lecture Notes in Computer Science 7044, Springer 2011.
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PROFESSIONAL SERVICE

Program Co-Chair, International BPM Conference (BPM'17), 2017
Program Co-Chair, Cooperative Information Systems Conference (CoopIS'11), 2011.
Conference Co-Chair, Workshop on Information Technologies and Systems (WITS), 2007.
National Science Foundation, Design Science Review Panel, Washington, DC, April-May 2007.
Chair, Best Paper Award Committee, WITS 2004.

Editorial Board Member:

ACM Transactions on MIS (2014 -)
IEEE Transactions on Services Computing (2008- 2012)
Information Systems Research (2005-07)
Journal of Electronics Commerce Research (1999-2004)
INFORMS Journal on Computing (2001-2008)
Information Technology and Management

Program committee member:

IEEE International Conference on Web Services/Services Computing (2005-2016)
Business Process Management Conference (BPM 2003-2015)
International Conference on Cooperative Information Systems, COOPIS (2004-2016)
International Conference on Information Systems, (ICIS-1999, ICIS-2001).
Workshop on Information Technology and Systems, (WITS 1997-2016).
17th International Conference on Conceptual Modeling (ER'98), Singapore, 1998.

INSTITUTIONAL SERVICE

Member of Information Resources Committee, Cornell University, 1991 - 1994.
Member of Dean's Committee on IS Core Planning, Cornell University, 1990.
Faculty Advisor, Information Technology Club, Cornell University, 1993-1994.
Faculty Advisor, Cornell India Association, 1993-1994.
Information Systems Workshop Organizer, University of Colorado, 1994-1996.
Participant of Information Systems Curriculum Redesign Effort, U. of Colorado, 94-95.
Member of Undergraduate Curriculum and Policy Committee, 1996-97.
Member of Technology Committee of the College of Business, 1997-98.
Member of the ATLAS initiative at the University of Colorado, Fall 1997.
Member of College Salary Equity Committee, University of Colorado, 1998-99.
IS Faculty Search Committee (chair), University of Colorado, 1998-99.
Member of College Research Committee, University of Colorado, 1998-2000.
Undergraduate information systems curriculum committee (chair), Penn State, 2002, 2006.
Department Promotion and Tenure Committee, elected member, Penn State, 2004-2008.
IS Faculty Search Committee (chair), Penn State, 2004.
Member, Taskforce on design of Information Security and Assurance Program, 2005-06.
Member, Dean's Committee for redesigning MBA Curriculum, Penn State, 2006-07.
Member, Vice-president of Research Committee for Smart Spaces, Penn State, 2006-07.
Institute of Computing Sciences, Steering Committee, Penn State, 2007-09.
Department Promotion and Tenure Committee (chair), 2009-2011.
Department Promotion and Tenure Committee, 2011-2012.
College Promotion and Tenure Committee, 2012-2014.
Department Faculty Recruiting Committee, Chair, 2013-2014.
Department Promotion and Tenure Committee, 2014-2016.

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