

# CURRICULUM VITAE

**Vijay V. Raghavan**

## EDUCATION

- 1978 Ph.D. Computing Science, University of Alberta  
1970 M.B.A. McMaster University  
1968 B. Tech. Mechanical Engineering, Indian Institute of Tech., Madras

## EMPLOYMENT EXPERIENCE

- 1994- *Distinguished Professor in Computer Science, UL-  
Ctr. for Adv. Computer Studies*
- 1988-94 *Professor of Computer Science, UL- Ctr for Adv.  
Computer Studies*
- 1986-88 *Assoc. Professor of Computer Science, UL- Ctr. for Adv.  
Computer Studies*
- 1981-86 *Assoc. Professor of Computer Science, University of Regina*
- May 1984-Aug 1984 *Database Consultant, Computer Center, University of Malaya*
- Aug 1983-Apr 1984 *Visiting Professor, CIS Group, Technical University of Berlin*
- 1977-81 *Asst. Professor of Computer Science, University of Regina*
- 1970-73 *Lecturer of Business Administration, St. Mary's University*

## AWARDS AND HONORS

- 2005 IEEE ICDM 2005 Outstanding Service Award
- 2001 UL Lafayette Foundation Distinguished Professor
- 1997- Member of the Phi Kappa Phi Honor Society
- 1995- Member of the Upsilon Pi Epsilon Computer Science Honor Society

- 1994- UL Lafayette Foundation Professorship
- 1993- ACM National Lecturer
- 1987 ACM Recognition of Service Award
- 1986 ACM Computing Reviews' *Reviewer Excellence* Recognition

## RESEARCH AREAS

Information Retrieval & Filtering, Conceptual Categorization of text/images, Knowledge Discovery in Databases, Image Database Management, Bioinformatics.

## RESEARCH GRANTS AND CONTRACTS

**State of Louisiana**, Governor's Information Technology Initiative (GITI). Towards Creating a Large and Scalable In-memory Database Management System , 07/01/07 - 07/31/08, \$81,019, with Drs. Kolluru and Shah.

**Webscalers L.L.C.**, Technologies for automatic Metasearch Engine Building, 02/08/07 - 06/30/08, \$60,295.

**State of Louisiana**, Governor's Information Technology Initiative (GITI). GRID: A New Paradigm for LITE , 07/01/05 - 07/31/07, \$327,750, with Dr. Kolluru.

**National Science Foundation (NSF) and the State of Louisiana Board of Regents (BoR)**, Louis Stokes-Louisiana Alliance for Minority Participation- Phase III (Years 1 - 2), 10/01/05 - 09/30/07, \$160,000, with Ms. DeCuir.

**State of Louisiana**, Governor's Information Technology Initiative (GITI). Distributed Heterogeneous Information Systems, October 1, 2001 - July 31, 2007, \$1.58M.

**National Science Foundation (NSF) and the State of Louisiana Board of Regents (BoR)**, Louis Stokes-Louisiana Alliance for Minority Participation- Phase II (Years 1 -4), 10/01/00 - 09/30/04, approx \$100,000 per year, with Ms. DeCuir.

**Louisiana Board of Regents (BoR)**, Interactive Assignments on the Web for Graduate Level Data Mining Courses- JFAP/SE Program, Jan. 1, 2000 - Dec. 31, 2000, \$24,000, with Dr. Kubat.

**United States Geological Survey (USGS)**, Creating Metadata for Framework Datasets- Don't Duck Metadata Program, Aug. 1, 1999 - July 31, 2000, \$11,500, with Dr. Chu.

**Department of Energy (DoE)**, EETAP- Information Systems and Technology Center for Energy and Environmental Applications, Aug. 1, 1997 - July 31, 2000, \$2.3M, with Drs. Chu, Efe and Szu.

**State of Louisiana Board of Regents (ITRS)**, Ranking and Similarity-based Retrieval in Heterogeneous, Distributed Databases, July 1, 1997 - June 30, 2000, \$120,000.

**State of Louisiana Board of Regents**, Systematic and Statewide Initiatives to Support DoD-EPSCoR FY97 Proposal, June 1, 1997 - June 1, 2000, \$750,000.

**Board of Regents and NSF-EPSCoR**, Joint Faculty Appointment Program on Harnessing Distributed, Heterogeneous Information Sources, December 1996 - August 1998. \$450,000, with Dr. Erol Hinds, of Southern Univ., and Drs. H. Chu and T. R. Rao.

**State of Louisiana Board of Regents**, LEQSF (1995-1998), Systemic and State-wide Initiative to Support

Louisiana DoD- EPSCoR Proposal, 1996-99, \$1.5M, with Dr. Trudell of UNO.

**Department of Defense**, Louisiana's DoD- EPSCoR Planning Grant, September 1993- August 1994. \$75,000, with Dr. Terry Watkins, of UNO, and Mrs. Reba Poulson and Mr. Ed Goodell of the State of Louisiana Board of Regents.

**National Science Foundation**, NSF-9114210, Invitational Workshop on Future Directions in Text Analysis, Retrieval and Understanding, 1991, \$25,105, with Dr. J. S. Deogun.

**State of Louisiana Board of Regents**, LEQSF (1991-92)- ENH - 100, Laboratory for Applied Artificial Intelligence, 1991-92, \$60,000, with Drs. Bayoumi, Chu, Dasgupta, Lursinsap and Loganantharaj.

**DARPA**, MDA 903-89-c-0041, Message Understanding for Template Filling, \$45,000, with Dr. J. S. Deogun.

**State of Louisiana Board of Regents**, LEQSF(1989-90)-ENH-51, Laboratory for Computer Vision and Multi-sensor Fusion Research, 1989-90, \$130,000, with Drs. Bayoumi, Chu, Loganantharaj and Seetharaman.

**United States Army Research Office**, DAAL03-89-0118, Application of Machine Learning Techniques for Effective Retrieval in Image Databases, 1989-1991, \$122,000, with V.N. Gudivada.

**State of Louisiana Board of Regents**, NSF/LASER (1989) - JCP-13, USL-NLU Distinguished Lecture Series in Data and Knowledge Bases, 1989-1990, \$5,000.

**National Science Foundation**, a IRI-8805875, Cluster-based Adaptive Information Retrieval, 1988-90, \$143,000, with J.S. Deogun.

**Natural Sciences and Engineering Research Council (NSERC)** of Canada, Operating grants from April 1979 to July 1987, \$54,000 during last 3 years.

## **PUBLICATIONS**

### **Edited Contributions**

J.-T. Yao, V. V. Raghavan and Z. Wu (Guest Eds.), Special Issue on "Web Information Fusion," *International J. of Information Fusion*, 2007 (in print).

J. Han, B. W. Wah, V. V. Raghavan, X. Wu and R. Rastogi (Eds.), "Proc. of the Fifth International Conference on Data Mining," IEEE Press, November 2005.

V. V. Raghavan and J. S. Deogun and H. Sever (Guest Eds.), Special Issue on "Knowledge Discovery and Data Mining," *J. Amer. Soc. for Information Sci.*, Vol. 49, No. 4, April 98.

V. V. Raghavan and V. N. Gudivada (Guest Eds.), Special Issue on "Content- Based Picture Retrieval Systems," *IEEE Computer*, September 1995, pp. 18-62.

A. Bookstein, Y. Chiaramella, G. Salton and V. V. Raghavan (Eds.), "Proc. of the 14th International ACM-SIGIR Conf. on Research and Development in Information Retrieval," ACM Press, 1991.

J. S. Deogun and V. V. Raghavan (Eds.), "Proc. of the 1987 South Central Regional ACM Conference," USL Press, 1987.

V. V. Raghavan (Ed.), "Proc. of the 8th International ACM-SIGIR Conf. on Research and Development in Information Retrieval," ACM Press, 1985.

### **Book Chapters**

B. Shah, R. Benton, Z. Wu, V. Raghavan, "Automatic and Semi-automatic Annotation Techniques for Images," *Semantic-Based Visual Information Retrieval*, (Yu-Jin Zhang, ed.), IRM Press, Hershey, PA, pp. 112-134, 2007 (ISBN 1-59904-370-X).

- Y. Xie, V. Raghavan, "A Probabilistic Logic-based Framework for Characterizing Knowledge Discovery in Databases," in *Foundations of Data Mining and Knowledge Discovery*, (Y. Y. Lin, S. Ohsuga, C. J. Lian, S. Tsumoto, eds.), Springer-Verlag, Berlin-Heidelberg, pp. 87-100, 2005 (ISBN 3-540-26257-1).
- V. Raghavan, N. Gudivada, Z. Wu, W. Grosky, "Information Retrieval," in *The Practical Handbook of Internet Computing*, (Munindar P. Singh, ed.), Chapman and Hall/CRC Press, Part-2, Ch. 12, 2004.
- K. Efe, V. Raghavan, A. Lakhotia, "Content and Link Structure Analysis for Searching the Web," *Computational Web Intelligence: Intelligent Technology for Web Applications*, (Y.-Q. Zhang, A. Kandel, T. Y. Lin and Y. Y. Yao, eds.), World Scientific Press, pp. 431-448, Aug 2004.
- S. Noel, V. Raghavan, C. Chu, "Document Clustering, Visualization, and Retrieval via Link Mining," in *Clustering and Information Retrieval*, (W. Wu, H. Xiong, S. Shekhar, eds.), Kluwer, Boston, MA, pp. 161-194, 2003.
- T. D. Johnsten and V. V. Raghavan, "Impact of Decision-Region based classification Mining Algorithms on Database Security," in J. Hale and V. Atluri (eds.), *Research Advances in Database and Information Systems Security*, Kluwer Academic, Norwell, MA, pp. 171-191, 2000.
- J. S. Deogun, V. V. Raghavan, A. Sarkar and H. Sever, "Data Mining: Trends in Research and Development," in T. Y. Lin and Nick Cercone (eds.), *Rough Sets and Data Mining: Analysis of Imprecise Data*, Kluwer Academic, pp. 9-46, 1997.
- V. N. Gudivada, V. V. Raghavan and K. Vanapipat, "Unified Approach to Data Modeling and Retrieval for a Class of Image Database Applications," in S. Jajodia and V. S. Subrahmanian (eds.), *Multimedia Database Systems: Issues and Research Directions*, Springer-Verlag, pp. 37-78, 1995.
- V. V. Raghavan, S. K. M. Wong and W. Ziarko, "Vector Space Model in Information Retrieval," in A. Kent and J. G. Williams (Eds.), *Encyclopedia of Computer Science and Technology*, Marcel Dekker, Inc., Vol. 22, Supplement 7, pp. 423-446, 1990.

### Refereed Journal Papers

- Y. Xie and V. V. Raghavan, "Language-Modeling Kernel Based Approach for Information Retrieval," *Journal of the American Society for Information Science and Technology*, 2007 (accepted).
- Y. Chang, M. Kim and V. Raghavan, "Construction of Query Concepts Based on Feature Clustering of Documents," *Information Retrieval*, Vol. 9, 2006, pp. 231-248.
- B. Shah, V. Raghavan, P. Dhatri and X. Zhao, "A Cluster-Based Approach for Efficient Content-Based Image Retrieval using a Similarity-preserving Space Transformation Method," *Journal of the American Society for Information Science and Technology*, 57(12), 2006, pp. 1694-1707.
- J. Choi, M. Kim and V. Raghavan, "Adaptive Relevance Feedback Method of Extended Boolean Model using Hierarchical Clustering Techniques," *Information Processing & Management*, 42(2), March 2006, pp. 331-349.
- B. Shah, K. Ramachandran and V. Raghavan, "A Hybrid Approach for Data Warehouse View Selection," *International J. of Data Warehousing & Mining*, 2(2), April-June 2006, pp. 1-37.
- Y. Xie, V. Raghavan, P. Dhatri and X. Zhao, "A New Fuzzy Clustering Algorithm for Optimally Finding Granular Prototypes," in *International Journal of Approximate Reasoning, Special Issue on Data Mining and Granular Computing*, 40 (1-2), July 2005, pp. 109-124. (Ranked #11 in Fall 2005 for frequency of papers accessed on-line from the journal).
- S. Noel, C. Chu and V. Raghavan, "Co-citation Count vs Correlation for Influence Network Visualization," *Information Visualization*, Vol. 3, No. 2, 2003, pp. 160-170.
- M. Kubat, A. Hafez, V. V. Raghavan, J. Lekkala, and W. K. Chen, "Itemset Trees for Targeted Association

- Mining," *IEEE Trans. on Knowledge and Data Engineering*, Vol. **15**, No. 6, 2003, pp. 1522-1534.
- M. Kim, V. V. Raghavan, and J. S. Deogun, "Concept Based Retrieval using Generalized Retrieval Functions," *Fundamenta Informaticae*, **47**(1-2):119-135, 2001.
- J. Yoon, V. V. Raghavan, V. Chakilam and L. Kerschberg, "Bitcube: A Three-Dimensional Bitmap Indexing for XML Documents," *J. of Intelligent Information Systems*, **17**(2/3):241-254, Nov. 2001.
- A. H. Alsaffar, J. S. Deogun, V. V. Raghavan and H. Sever, "Enhancing Concept-based Retrieval based on Minimal Term Sets", In Z. Ras and A. Skowron (eds.), Special Issue on Methodologies for Intelligent Systems, *J. of Intelligent Information Systems*, Vol. **14**, No. 2-3: 155-173, 2000.
- N. Tadayon and V. V. Raghavan, "Improving perceptron convergence algorithm for retrieval systems," *Pattern Recognition Letters*, Vol. **20**, No. 11-13, 1999, pp. 1331-1336.
- P. Bollmann-Sdorra and V. V. Raghavan, "On the Necessity of Term Dependence in a Query Space for Weighted Retrieval," *J. Amer. Soc. for Information Sci.*, Vol. **49**, No. 13, 1998, pp. 1161-1168.
- V. V. Raghavan, J. S. Deogun and H. Sever, "Data Mining: Trends and Issues- Guest Editors' Introduction," *J. Amer. Soc. for Information Sci.*, Vol. **49**, No. 4, 1998, pp. 397-402.
- S. K. Choubey, J. S. Deogun, V. V. Raghavan and H. Sever, "On Feature Selection and Effective Classifiers," *J. Amer. Soc. for Information Sci.*, Vol. **49**, No. 4, 1998, pp. 423-434.
- V. N. Gudivada, V. V. Raghavan, W. I. Grosky and R. Kasanagottu, "Information Retrieval on the World-Wide Web," *IEEE Internet Computing*, Vol. **1**, No. 5, 1997, pp. 58-68.
- S. K. Choubey and V. V. Raghavan, "Generic and Fully Automatic Content-based Image Retrieval Using Color," *Pattern Recognition Letters*, Vol. **18**, No. 11-13, 1997, pp. 1233-1240.
- V. N. Gudivada and V. V. Raghavan, "Modeling and Retrieving Images by Content," *Information Processing & Management*, Vol. **33**, No. 4, 1997, pp. 427-452.
- J. N. Bhuyan, J. S. Deogun, and V. V. Raghavan, "Algorithms for the Boundary Selection Problem in Information Retrieval," *Algorithmica*, Vol. **17**, 1997, pp. 133-161.
- V. N. Gudivada and V. V. Raghavan, "Content-based Image Retrieval Systems," *IEEE Computer*, Vol. **8**, No. 9, Sept. 1995, pp. 18-22.
- S. K. Bhatia, J. S. Deogun and V. V. Raghavan, "Conceptual Query Formulation and Retrieval," *Journal of Intelligent Information Systems*, Vol. **5**, No. 3, 1995, pp. 183-209.
- N. Pissinou, V. V. Raghavan and K. Vanapipat, "RIMM: A Reactive Multidatabase Integration Model," *Informatica- An International J. of Computing and Informatics*, Vol. **19**, No. 2, 1995, pp. 177-194.
- V. N. Gudivada and V. V. Raghavan, "Design and Evaluation of Algorithms for Image Retrieval by Spatial Similarity," *ACM Trans. on Information Systems*, Vol. **13**, No. 2, April 1995, pp. 115-144.
- P. Bollmann, V. V. Raghavan, "On the Delusiveness of Adopting a Common Space for Modeling IR Objects: Are Queries Documents?" *J. Amer. Soc. for Information Sci.*, Vol. **44**, December 1993, pp. 579-587.
- P. Bollmann, V. V. Raghavan, G. S. Jung and L. -C. Shu, "On Probabilistic Notions of Precision as a Function of Recall," *Information Processing and Management*, Vol. **28**, May-June 1992, pp. 291-315.
- S. K. Mishra, V. V. Raghavan and N. -F. Tzeng, "Efficient Algorithms for Selection of Recovery Points in Tree Task Models," *IEEE Trans. on Software Engineering*, Vol. **SE-17**, July 1991, pp. 731-734, (Concise Paper).
- L. V. Saxton and V. V. Raghavan, , "Design of an Integrated Information Retrieval/Database Management System," *IEEE Trans. on Data and Knowledge Engineering*, June 1990, Vol. **2**, pp. 210-219.

- V. V. Raghavan, P. Bollmann and G. S. Jung, "A Critical Investigation of Recall and Precision as Measures of Retrieval System Performance," *ACM Trans. on Information Systems*, July 1989, Vol. **7**, pp. 205-229. (One of 6 papers selected from about 110 papers submitted to ACM-SIGIR Conference to be published in a special issue of this journal.)
- S. K. M. Wong, W. Ziarko, V. V. Raghavan and P. C. N. Wong, "Extended Boolean Query Processing in the Generalized Vector Space Model," *Information Systems*, 1989, Vol. **14**, pp. 47-63.
- J. S. Deogun and V. V. Raghavan, "Integration of Information Retrieval and Database Management Systems," *Information Processing and Management - Special Issue: The Potential for Improvements in Commercial Retrieval Systems*, 1988, Vol. **24**, pp. 303-313.
- S. K. M. Wong, W. Ziarko, V. V. Raghavan and P. C. N. Wong, "On Modeling Information Retrieval Concepts in Vector Spaces," *ACM Trans. on Database Systems*, June 1987, Vol. **12**, pp. 299-321.
- V. V. Raghavan and R. S. Sharma, "A Framework and a Prototype for Intelligent Organization of Information," *The Canadian J. of Information Science*, 1986, Vol. **11**, pp. 88-101.
- V. V. Raghavan and S. K. M. Wong, "A Critical Analysis of Vector Space Model for Information Retrieval," *J. Amer. Soc. for Information Sci.*, 1986, Vol. **37**, pp. 279-287.
- P. Prusinkiewicz and V. V. Raghavan, "A Simple, Space-optimal Contour Algorithm for a Set of Iso-rectangles," *Congress Numerantium*, May 1985, Vol. **46**, pp. 249-270.
- J. S. Deogun, V. V. Raghavan and T. K. W. Tsou, "Organization of Clustered Files for Consecutive Retrieval," *ACM Trans. on Database Systems*, Dec. 1984, Vol. **9**, pp. 646-671.
- M. Y. L. Ip, L. V. Saxton and V. V. Raghavan, "On the Selection of an Optimal Set of Indexes," *IEEE Trans. on Software Engineering*, March 1983, Vol. **SE-9**, pp. 135-143. (One of 4 papers selected from about 60 papers presented at IEEE 5th International COMPSAC Conference to be included in a special issue of this journal).
- V. V. Raghavan and J. S. Deogun, "Information Retrieval Research: Strategies and User Implications," *Information Technology: Research and Development*, April 1982, Vol. **1**, pp. 157-171.
- V. V. Raghavan and C. T. Yu, "A Comparison of the Stability Characteristics of Some Graph Theoretic Clustering Methods," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 1981, Vol. **PAMI-3**, pp. 393-402.
- V. V. Raghavan and C. T. Yu, "Experiments on the Determination of the Relationships between Terms," *ACM-Transactions on Database Systems*, 1979, Vol. **4**, pp. 240-260. (Only paper selected from about 15 papers presented at First Annual International ACM-SIGIR Conference to be included for publication in this journal)
- C. T. Yu and V. V. Raghavan, "A Single Pass Method for Determining the Relationships between Terms," *J. Amer. Soc. for Information Sci.*, 1977, Vol. **28**, pp. 345-354.
- V. V. Raghavan and C. T. Yu, "A Note on a Multidimensional Searching Problem," *Information Processing Letters*, 1977, Vol. **6**, pp. 133-135.

#### **Refereed Papers in Conference Proceedings**

- S. Chu, J. Chen, Z. Wu, V. V. Raghavan and H. Chu. A Treemap-based Result Interface for Search Engine Users, *12th International Conference on Human-Computer Interaction (HCI 2007)*, Beijing, China, July 2007 (accepted).
- A. De, E. D. Diaz and V. V. Raghavan, "On Fuzzy Result Merging for Metasearch," in (Eds.), *Proceedings of the IEEE International Conference on Fuzzy Systems- FUZZ-IEEE 2007*, Imperial College, London, UK, July 2007 (accepted).

- A. De, E. D. Diaz and V. V. Raghavan, "A Fuzzy Search Engine Weighted Approach to Result Merging for Metasearch," in (Eds. A. An, J. Stefanowski, S. Ramanna, C. J. Butz, W. Pedrycz and G. Wang), *Proceedings of the 11th International Conference, RSFDGrC 2007*, Toronto, Canada, May 2007, pp. 95-102.
- A. Doloc-Mihu and V. V. Raghavan, "Fusion and Kernel Type Selection in Adaptive Image Retrieval," in (ed. B. V. Dasarathy), *Multisensor, Multisource Information Fusion: Architectures, Algorithms, and Applications (DS22)*, SPIE Defense and Security, DSS2007, Volume 6571, Orlando, FL, April 9-13, 2007.
- A. Doloc-Mihu and V. V. Raghavan, "Three-Way Aspect Model (TWAPM) and Co-Training for Mining Image Collections," in (ed. B. V. Dasarathy), *Data Mining, Intrusion Detection, Information Assurance, and Data Networks Security (DS21)*, SPIE Defense and Security, DSS2007, Volume 6570, Orlando, FL, April 9-13, 2007.
- A. Doloc-Mihu and V. V. Raghavan, "Score Distribution Approach to Automatic Kernel Selection for Image Retrieval Systems," *Proceedings of the 16th International Symposium on Methodologies for Intelligent Systems (ISMIS 2006)*, Springer, LNAI/LNCS, vol. 4203, Bari, Italy, September 27-29, 2006, pp. 443-452.
- A. Doloc-Mihu and V. V. Raghavan, "Selecting the Kernel Type for a Web-based Adaptive Image Retrieval System (AIRS)," *Internet Imaging VII, SPIE-IS&T Electronic Imaging*, San Jose, CA, January 19, 2006.
- M. K. Elteir, K.M. Ahmed, V. V. Raghavan and A.M. Hafez, Scalabale, Adaptive Distributed Association Rule Mining Algorithms for Skewed Datasets, in (Eds. G. Di Fatta, M. R. Berthold and S. Parthasarathy), *Proceedings of the Workshop on Parallel Data Mining*, in conjunction with ECML/PKDD 2006 conference, Berlin, Germany, Sept. 2006.
- P. Kuntala and V. V. Raghavan, "Fusion Based Methodology for Spatial Clustering," in (Eds. C. Claramunt, S. Saltenis, and K.-J. Li), *Proceedings of the Third Workshop on Spatio-Temporal Database Management, STDBM 2006*, in conjunction with VLDB 2006, Seoul, Korea, Sept. 2006.
- A. Doloc-Mihu and V. V. Raghavan, "Using Score Distribution Models to Select the Kernel Type for a Web-based Adaptive Image Retrieval System," in (Eds. H. Sundaram, M. Naphade, J. R. Smith, Y. Rui), *Proceedings of the Image and Video Retrieval: 5th International Conference, CIVR 2006*, Tempe, AZ, USA, July 13-15, 2006, pp. 443-442.
- Y. Xie, M. Nagarajan, V. V. Raghavan, and H. Haddad, "On Novelty Evaluation of Potentially Useful Patterns," in (Eds. S. F. Crone, S. Lessmann & R. Stahlbock), *Proceedings of the 2006 International Conference on Data Mining*, Las Vegas, NV, June 2006, pp. 211-217.
- Y. Xie, T. Johnsten, V. V. Raghavan and K. Ramachandran, On Discovering "Potentially Useful" Patters from Databases, (Eds. Y.-Q. Zhang, T. Y. Lin), *Proceedings of the 2006 IEEE International Conference on Granular Computing*, Atlanta, May 2006, pp. 494-497.
- D. Mundluru, Z. Wu, V. Raghavan, W. Meng and H. Zhao, "Automatically Extracting Subsequent Response Pages from Web Search Sources," in (Eds. D. Caragea, V. Honavar, I. Muslea, R. Ramakrishna), *Proc. 5th IEEE Workshop on Knowledge Acquisition from Distributed Autonomous, Semantically Heterogeneous Data and Knowledge Sources*, Houston, TX, Nov. 2005, pp. 25-34.
- E. Diaz, A. De and V. Raghavan, "A Comprehensive OWA-based Framework for Result Merging in Metasearch," in (Eds. D. Slezak, J.-T. Yao, J. F. Peters, W. Ziarko, X. Hu), *Proc. 10th International Conf. on Rough Sets, Fuzzy Sets and Granular Computing (RSFDGrC 2005, Part II)*, Regina, Canada, Sept. 2005, pp. 193-201.
- K. Ramachandran, B. Shah and V. Raghavan, "Access Pattern-Based Dynamic Pre-fetching of Views in an OLAP System," in *International Conference on Enterprise Information Systems*, May 2005.
- J. R. Alsabbagh, V. Raghavan: A Model for Multiple-Query Processing Based upon Strong Factoring, *Proceedings of the International Conference on Information Technology: Coding and Computing (ITCC'04)*, Vol.

1, 2004, pp. 528-533.

- H. Zhao, W. Meng, Z. Zu, V. Raghavan and C. Yu, "Fully Automatic Wrapper Generation for Search Engines," in (Eds. A. Ellis, T. Hagino, F. Douglis, P. Raghavan), *Proc. 14th International World Wide Web Conf.*, Chiba, Japan, May 2005, pp. 66-75.
- Y. Xie, D. Mundluru and V. Raghavan, "Incorporating Agent-based Neural Network Model for Adaptive Meta Search," in (Eds. V. A. Clincy, B. Harbort), *Proc. 43rd ACM Southeast Conf. (ACMSE 2005)*, Kennesaw, GA, March 2005, pp. 53-58.
- A. Doloc-Mihu, V. Raghavan, S. Karnatapu and C. H. Chu, "Interface for Visualization of Image Database in Adaptive Image Retrieval Systems," in (Eds. R. Erbacher, J. Roberts, M. Groehn, K. Boerner), *Proceedings of IS&T/SPIE 17th Annual Symposium on Electronic Imaging Science and Technology*, Vol. 5669, *Visualization and Data Analysis 2005*, San Jose, CA, Jan. 2005, pp. 106.
- S. Karnatapu, K. Ramachandran, Z. Wu, B. Shah, V. Raghavan and R. Benton, "Estimating Size of Search Engines in Uncooperative Environment," in *International Workshop on Web-based Support Systems (WI-WSS'04)*, Beijing, China, Sep. 2004.
- Z. Wu, D. Mundluru and V. Raghavan, "Automatically Detecting Boolean Operations Supported by Search Engines," in *International Workshop on Web-based Support Systems (WI-WSS'04)*, Beijing, China, 2004.
- R. Mehra, S. K. Gandham, Z. Wu and V. Raghavan, "Configuring Java-based Web Application Development Environment for an Academic Setting," in *International Workshop on Web-based Support Systems (WI-WSS'04)*, Beijing, China, Sep. 2004.
- E. Diaz, A. De and V. Raghavan, "On Selective Result Merging in a Metasearch," in *International Workshop on Web-based Support Systems (WI-WSS'04)*, Beijing, China, Sep. 2004.
- A. Doloc-Mihu, V. Raghavan and P. Bollmann-Sdorra, "Integration of Multiple Feature Types with Adaptive Retrieval in Vector Space Model," in *ACM SIGIR Workshop on Mathematical/Formal Methods in Information Retrieval*, U.K., July 2004.
- B. Shah, K. Ramachandran and V. Raghavan, "Storage Estimation of Multidimensional Aggregates in a Data Warehouse Environment," in *World Multi-Conference on Systemics, Cybernetics and Informatics*, Orlando, FL, July 2004.
- H. Sever and V. Raghavan, "Meta Patterns: Discovering Rough Classifiers," in *North American Fuzzy Information Processing Society Conference (NAFIPS 2004)*, Banff, Canada, June 2004.
- H. Sever, Z. Bolat and V. Raghavan, "Use of Preference Relation for Text Categorization," in (Eds. S. Tsumoto, R. Slowinski, J. Komorowski and J. W. Grzymala-Busse), *Proc. of 4th International Conference on Rough Sets and Current Trends in Computing (RSCTC 2004)*, Uppsala, Sweden, June 2004, pp. 708-713.
- Y. Xie and V. Raghavan, "GAMInG - A Framework for Generalization of Association Mining via Information Granulation," in (Eds. S. Tsumoto, R. Slowinski, J. Komorowski and J. W. Grzymala-Busse), *Proc. of 4th International Conference on Rough Sets and Current Trends in Computing (RSCTS 2004)*, Uppsala, Sweden, June 2004, pp. 119-203.
- J. Deogun, L. Jiang and V. Raghavan, "Discovering Maximal Potentially Useful Association Rules Based on Probability Logic," in (Eds. S. Tsumoto, R. Slowinski, J. Komorowski and J. W. Grzymala-Busse), *Proc. of 4th International Conference on Rough Sets and Current Trends in Computing (RSCTC 2004)*, Uppsala, Sweden, June 2004, pp. 274-284.
- B. Shah, A. Gummadi, J. Yoon and V. Raghavan, "Efficient Dynamic Indexing and Retrieval of XML Documents using Three-Dimensional Quasi-BitCube," in *WWW2004 First International Workshop on High Performance XML Computing*, New York, NY, May 2004.
- B. Shah, P. Dhatric and V. Raghavan, "Using Inverse Image Frequency for Perception-Based Color Image

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- K.-L. Liu, W. Meng, J. Qiu, C. Yu, V. V. Raghavan, Z. Wu, Y. Lu, H. He and H. Zhao. "AllInOneNews: Development and Evaluation of a Large-Scale News Metasearch Engine," *26th ACM SIGMOD International Conference on Management of Data (ACM SIGMOD 2007)*, Industrial track, Beijing, China, June 2007, pp. 1017-1028.
- Z. Wu, V. V. Raghavan, W. Meng, C. Yu, D. Chun, H. He and K. Sai, "SE-LEGO: A System to Create Meta-Search Engines on Demand," in *Proc. of 26th ACM SIGIR Conference, Demo paper*, Toronto, CDN, Jul. 2003, pp. 464.
- Z. Wu, V. V. Raghavan, C. Du, W. Meng, H. He and C. Yu, "Creating Customized Meta-Search Engines on Demand Using SE-LEGO," in *Proc. of Fourth International Conference on Web-Age Information Management (WAIM'03)*, Demo Paper, Chengdu, China, Aug. 2003, pp. 503-505.

## **SELECTED SCHOLARLY ACTIVITIES**

### **Keynote and Invited Presentations**

- "Language-Modeling Kernel Based Approach for Information Retrieval," UL-CACS seminar series, Mar. 2007.
- "Web Content Mining for Web Search Sources," InfoSys Ltd., Mysore, India, Jan. 2007.
- "Web Content Mining for Web Search Sources," International School of Information Management, Mysore, India, Jan. 2007.
- "Web Content Mining for Web Search Sources," IIT Madras, India, Jan. 2007.
- "Adaptive and Efficient Content-based Image Retrieval Architectures," Univ. of Louisville, Feb. 2006.
- "Web Content Mining," Marshall University, Huntington, WV, Feb. 2006.
- "Enhancement of Internet Search Engines to Achieve Concept-based Retrieval," Univ. of Cincinnati, Feb. 2006.
- "First Louisiana - Cuba workshop on Data Mining (1 week)," UL-CACS seminar series, with G. Maples, Jan. 2006.
- "Web Content Mining," UL-CACS seminar series, Fall 2005.
- "3M Clustering: A Validity Function and Clustering Algorithm for Prototype-based Reasoning," IIT Madras, India, June 2005.
- "A Methodology for Knowledge Hiding in Databases and its Application to Patient Anonymity," IIT Madras, India, June 2005.
- "XML Indexing and Retrieval System" at the Workshop on Cyber Security at University of Louisiana at Lafayette, September 2003.
- "Access Control in XML Retrieval," at the Workshop on Cyber Security at University of Louisiana at Lafayette, September, 2003.
- "Knowledge Hiding in Databases: A Methodology for Database Security," at the Workshop on Cyber Security at University of Louisiana at Lafayette, September 2003.
- "SE-LEGO: Build Your Own Meta-Search Engine on Demand," at the Workshop on Cyber Security at

University of Louisiana at Lafayette, September 2003.

- “Itemset Trees for Targeted Association Queries,” University of Malaya, Kuala Lumpur, Malaysia, December 2002.
- “Adaptive Image Retrieval Based on Color,” International Islamic Univ. of Malaysia, December 2002.
- “Itemset Trees for Targeted Association Queries,” MIMOS Inc., Kuala Lumpur, Malaysia, December 2002.
- “Dynamic Data Mining,” Professional ACM Chapter, Houston, TX, May 2002.
- “Dynamic Data Mining,” University of South Alabama, Mobile, AL, March 2002.
- “Dynamic Data Mining,” MITRE Corporation, Washington, D.C., 2001.
- “Dynamic Data Mining,” SIGMA XI Chapter, Univ. of Louisiana, Lafayette, LA, 2001.
- “Enhancement of Internet Search Engines to Achieve Concept-based Retrieval,” University of Central Florida, Orlando, FL, 2001.
- “Dynamic Data Mining,” 7th CIICC, October 2000.
- “The Itemset Tree: A Data Structure for Data Mining,” 4th SITI, October 2000.
- “Architectural, User Interface and Performance Issues in Image Database Management,” *Workshop on Large Databases of Complex Objects, with special focus on Image Databases* Sept. 1997, Caceres, Spain.
- “Advances in Content-based Image Retrieval and their Implications to GIS,” *Workshop on Advances in Geographic Information Systems*, Nov. 1993, Washington, DC.
- “Perspectives on Text Analysis, Retrieval and Understanding,” *‘Reflections on the Future’ Conf.* Sept. 1993, Edmonton, Alta., Canada.
- “A Machine Learning Approach to Automatic Pseudo-Thesaurus Construction,” *Workshop of Japanese Computer Society’s Special Interest Group on Fundamental Infology*, May 1992, Tokyo, Japan.
- “On the Integration of Information Retrieval and Database Management Systems,” *Malaysian Computer Society’s Banquet*, Sept. 1984.

### **Intellectual Property Disclosures and Patents**

- 2007 Disclosure, ‘A Treemap-based Result Interface for Search Engine Users,’ Submitted to UL, 03/03/2006
- 2007 Patent, ‘System, Method and Computer Program Product for Data Mining and Automatically Generating Hypothesis from Data Repositories’ Araicom Research L.L.C., filed 03/14/2007, Serial No. PCT/US2007/063983, (Pending)
- 2005 Patent, ‘System, Method and Computer Program Product for Information Sorting and Retrieval Using Language Modeling Kernel Function,’ Araicom Research L.L.C., filed filed 12/20/2005, U.S. Application 60/752,756, (Pending)
- 2005 Patent, ‘Automatic Wrapper Generation for Search Engines,’

Webscalers L.L.C., filed on 01/26/2005, U.S. Application  
No. 11/340,112 (Pending)

2004 Patent, 'Large-scale Metasearch Engine,' Webscalers, L.L.C.,  
filed 07/22/2004, Serial No. 11/184040, (Pending)

### **Conference & Professional Positions**

- 2007 Workshops Chair, IEEE/WIC Web Intelligence/ Intelligent Agents Technology conf. 2007
- 2007 Review Panel, National Science Foundation
- 2006 Reviewer, Book on 'Web Intelligence' by Lingras and Akerker, Bartlett & James Publishers
- 2006 Awards Chair, IEEE ICDM 2006 conf. Awards Selection Committee
- 2005 Reviewer, Atlantic Canada Innovation Fund Proposals
- 2005 Member, Consulting Team for LA Dept. of Health Hospitals
- 2005 General Chair, IEEE ICDM 2005 Conference (IEEE ICM'05)
- 2005 Panel member, IEEE ICDM 2005 Panel on 'Data Mining: Where do we go next?'
- 2004 Co-Chair, Workshop on Web-based Support Systems (WSS'04- IEEE WI/IAT'04)
- 2004 Reviewer, Workshop on Foundations of Data Mining (FDM'04- IEEE ICDM'04)
- 2003 Session Chair, IEEE WI/IAT Conference (IEEE WI/IAT'03)
- 2002 Review Panel, Member of a panel that reviewed Proposals for NSF Career Award
- 2001 Review Panel, Member of a panel that did a 10-year review of the CS program at UNLV
- 2001 Review Panel, Member of a panel that reviewed Proposals for NSF Career Award
- 2000 Reviewer, IEA/AIE 2000
- 1999 Session Chair, ISMIS-99
- 1998 Co-Guest Editor, Special Issue of J. Amer. Soc. for Inform. Sci. on Data Mining
- 1997 Session Chair, Pattern recognition in Practice- V
- 1997 Session Chair, CISST-97
- 1997 Session Chair, ISMIS-97 Int'l Symp. on Methodologies for Intelligent Systems
- 1997 Reviewer, ACM Multimedia Conference- 97

- 1996 Reviewer, 8th Int'l. Conference on Computing and Information
- 1995 Panel Member, ACM CSC '95, Content-based Image Retrieval Systems
- 1995 Session Chair, Mardi Gras 1995 conf. on HPCC Technologies
- 1995 Ex-officio Member, La. Stimulus for Excellence in Research (LaSER) Committee
- 1995 Organizing Committee, ACM-CSC Wkshp On Rough Sets & Database Mining
- 1994 Session Chair, IFIP World Congress 1994
- 1993- ACM Lecturer, ACM Lecturership Series
- 1993-00 Co-chair, La. State Planning Committee (DOD- EPSCoR)
- 1993 Session Chair, Symp. on Document Analysis & Inform. Retr.
- 1992 NSF Review Panel, Database and Expert Systems Program
- 1991 Panel Member, NSF Wkshp on Text Analysis, Retrieval and Understanding
- 1991 Program Co-chair, ACM- SIGIR Conference
- 1991 Publicity Chair, ACM Multimedia and Information Systems Conf.
- 1985-90 Co-editor, SIGIR Forum Newsletter
- 1988 Session Chair, ACM- SIGIR Conference
- 1987 Program Chair, ACM South Central Region Conference
- 1987 Panel Chair, ASIS Annual Conference
- 1987 Session Chair, ACM- SIGIR Conference
- 1987 Publicity Chair, ACM- SIGIR Conference
- 1986 Panel Chair, ASIS Annual Conference
- 1986 Panel Chair, Canadian Assoc. for Inform. Sci. Conference
- 1985 Program Chair, ACM- SIGIR Conference
- 1985 Panel Member, ACM- SIGIR Conference
- 1985 General Chair, Wkshp on Found. Adaptive Inform. Process.

#### **Conference Program Committee Membership**

- 2007 IEEE International Conference on Fuzzy Systems (Fuzz-IEEE'07)
- 2007 Workshop on Mining Complex Data (MCD'07- ECML/PKDD'07)
- 2007 IEEE International Conf. on Data Mining (IEEE ICDM'07)
- 2007 ACM SIGKDD conference (ACM SIGKDD'07)
- 2007 Joint Rough Sets Symposium (JRS'07)
- 2007 Third International Conf. on Natural Computation (ICNC'07)
- 2006 International Conf. on Hybrid Information Technology (ICHIT'06)
- 2006 International Symposium on Fuzzy and Rough Sets (ISFUROS'06)
- 2006 IEEE-ICDM Workshop on Foundations of Data Mining  
(FDM'06- IEEE ICDM'06)
- 2006 IEEE-ICDM Workshop on Mining Complex data (MCD'06- IEEE ICDM'06)
- 2006 IEEE International Conf. on Data Mining (IEEE ICDM'06)
- 2006 ACM SIGIR Conference (ACM SIGIR'06)
- 2006 Conf. on Rough Sets and Knowledge Technology (RSKT'06)
- 2006 Conf. on Rough Sets and Current Trends in Computing (RSCTC'06)
- 2006 International Symposium for Methodologies for Intelligent Systems  
(ISMIS'06)
- 2005 ACM SIGIR Conference (ACM SIGIR'05)
- 2005 International Symposium for Methodologies for Intelligent Systems  
(ISMIS'05)
- 2004 ACM SIGIR Workshop on Mathematical Foundations of IR  
(MF/IR'04- ACM SIGIR'04)
- 2004 Workshop on Rough Set Theory and Soft Computing (RSSC'04- IEEE WI/IAT'04)
- 2004 IEEE International Conf. on Data Mining (IEEE ICDM'04)
- 2003 Workshop on Rough Set Theory and Soft Computing  
(RSSC'03- IEEE WI/IAT'03)
- 2003 ACM SIGIR Workshop on Mathematical Foundations of IR  
(MF/IR'03- ACM SIGIR'03)

- 2003 International Symposium for Methodologies for Intelligent Systems (ISMIS'03)
- 2003 IEEE International Conf. on Data Mining (IEEE ICDM'03)
- 2002 IEEE International Conf. on Data Mining (IEEE ICDM'02)
- 2002 ACM-SIGIR Workshop on Mathematical Foundations of IR (MF/IR'02- ACM SIGIR'02)
- 2002 World Wide Web Conference (WWW'02)
- 2002 International Symposium for Methodologies for Intelligent Systems (ISMIS'02)
- 2001 IEEE International Conference on Data Mining (IEEE ICDM'01)
- 2001 Multimedia Information Systems (MIS'01) Conference
- 2001 ACM-SIGIR Workshop on Mathematical Foundations of IR (MF/IR'01- ACM SIGIR'01)
- 2001 Web Intelligence (WI'01) Conference
- 2000 ACM-SIGIR Workshop on Theoretical Advances on Information Retrieval
- 2000 International Symposium for Methodologies for Intelligent Systems (ISMIS'00)
- 2000 Conf. on Rough Sets and Current Trends in Computing (RSCTC'00)
- 1999 Conf. on Data Warehousing & KD (DaWak'99)
- 1999 Conf. on Internet Data Management (IDM'99)
- 1999 International Symposium for Methodologies for Intelligent Systems (ISMIS'99)
- 1998 Workshop on Rough Sets, Data Mining and Granular Computing (RSDMGrC'98)
- 1997 International Database Engineering and Applications Symposium (IDEAS'97)
- 1997 Wkshp on Rough Sets and Soft Computing (RSSC'97)
- 1996 ACM Conference on Information and Knowledge Management (CIKM'96)
- 1995 Workshop on Rough Set Theory (RST'95)
- 1995 ACM- Conf. on Inform. & Knowledge Mgmt (CIKM'95)

- 1995 ACM-CSC Wkshp on Rough Sets & Database Mining
- 1994 IEEE Conf. on Tools with AI: Knowledge-based Systems, Intelligent Databases
- 1994 Wkshp on Rough Sets and Soft Computing (RSSC'94)
- 1994 ACM- SIGIR Conference
- 1993 Wkshp on Advances in Geographic Information Systems
- 1992 ACM- SIGIR Conference
- 1991 NSF Wkshp on Text Analysis, Retrieval and Understanding
- 1990 ACM- SIGIR Conference
- 1989 ACM- SIGIR Conference
- 1988 ACM- SIGIR Conference

## **GRADUATE STUDENT TRAINING**

### **Thesis Supervision**

#### Ph.D. Level

1. J.N. Bhuyan (1990), "Cluster-based Adaptive Information Retrieval."
2. G.S. Jung (1991), "Connectionist Domain Knowledge Acquisition and its Evaluation in Information Retrieval."
3. J.R. Alsabbagh (1992), "Characterization and Exploitation of Sharing Opportunities in Multiple Query Optimization."
4. V.N. Gudivada (1993), "A Unified Framework for Retrieval in Image Databases."
5. S.K. Mishra (1994), "Randomized Branch and Bound Algorithms-A Framework for Combinatorial Optimization."
6. H. Sever (1995), "Knowledge Structuring for Database Mining, and Text Retrieval Using Past Optimal Queries."
7. K. Vanapipat (1995), "A Framework for Object Integration in the Context of a Multidatabase Environment," Co-advisor: Dr. N. Pissinou.
8. S. Choubey (1997), "Generic and Fully Automatic Content-based Image Retrieval using Color, Shape, and Texture."
9. T. Johnsten (1998), "Impact of Data Mining on Database Security."
10. J. Thomas (2001), "Adaptive Algorithms for Intelligent Association Mining."
11. S. Noel (2001), "Data Mining and Visualization of Reference Associations: Higher-order Citation Analysis," Co-advisor: Dr. C. H. Chu.
12. A. Roszypal (2003), "Association Mining in Time Varying Domains," Co-advisor: Dr. M. Kubat.

13. E.D. Diaz (2004), "Selective Merging of Retrieval Results for Metasearch Environments."
14. Y. Xie (2004), "An Approach to Information Retrieval based on the Language-Modelling Kernel."
15. W.-K. Chen (2005), "Data Structures for Selective Association Mining."
16. B.N. Shah (2005), "On Improving Information Retrieval Performance from Structured, Semi-structured and unstructured Information Sources."
17. A. De (2006), "Fuzzy Result Merging Models for Metasearch."
18. P. Kuntala (2006), "Fusion and Clustering Algorithms for Spatial Data."
19. A. Doloc-Mihu (2007), "Adaptive Image Retrieval System: similarity matching, learning, fusion and visualization."

M.S. Level

1. T.K.W. Tsou (1982), "Consecutive Retrieval Organization of Clustered Files."
2. S.S. Ting (1985), "A Flexible Approach for the Integration of a DBMS and an IRS."
3. R. Sharma (1986), "Classification-based Adaptive Information Retrieval: A Framework and an Experimental Prototype."
4. K. Uildriks (1996), "WebMine: A System for Data Mining over the World Wide Web."
5. W.-K. Chen (1998), "Reengineering of the Belfast Newsletter Index Database System for Efficient Access via Internet."
6. B. Suravarapu (1998), "An Intermediary Based Approach for Searching Product Catalogs on the Internet."
7. X. Zhao (2000), "Space Transformation and Clustering for Proximity Datasets."
8. B. Shah (2001), "Generic and Efficient Online Content-based Image Retrieval."
9. P. Dhatri (2004), "Adaptive Content-based Image Retrieval using Space Transformation and Clustering."
10. K. Ramachandran (2005), "Techniques for Storage Estimation and Dynamic Selection of OLAP Views."

**Thesis Committee Membership**

Ph.D. Level

T. Huang (1988), P. Michaud (1990), D. Chung (1990), P. Rhee (1990), C. Leger (1990), S. K. Bhatia (1991), B. A. Babin (1992), P.-J. Chung (1992), M. Beheshti (1992), D. Schwartz (1993), C. R. Chow (1994), V. B. Krishnamoorthy (1995), G. Lin (1994), G. Washburn (1995), G.-Y. Song (1995), R. G. Benton (2001), R. Fanguy (2001), J. C. Deprez (2003), C. Gunay (2003), M. Mandviwalla (2005), P. Fanguy (2006), Byung Kim (2006), Alp Astuay (2007).

M.S. Level

M.Y.L. IP (1981), P.C.N. Wong (1986), Y.Y. Yao (1988), M. Kottapalli(1991), A. Narasimhan (1992), S.P. Obili (1994), Z. Xing (1994), S. Noel (1998), M. Cooperson (1999), V. Chakilam (2002), A. Ravichandran (2005), A. Gummadi (2004), V. Philip (2006).