

Yuqing Melanie Wu

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Education

Ph.D. in Computer Science	2004	University of Michigan, Ann Arbor
M.S. in Computer Science	1999	Indiana University, Bloomington
M.S. in Computer Science	1998	Peking University, Beijing, China
B.S. in Computer Science	1995	Peking University, Beijing, China

Appointments

Associate Professor	Pomona College	Jul. 2015 - present
Visiting Asso. Prof.	Pomona College	Jul. 2014 – Jul. 2015
Associate Professor	Indiana University	Aug. 2010 – Jun. 2015
Visiting Professor	Chinese University of HK	May, 2012 – Jun. 2012
Visiting Professor	Hasselt University	Jan, 2012 – Apr. 2012
Assistant Professor	Indiana University	Aug. 2004 – Jul. 2010
Research Intern	IBM Almaden Research Center	Jun. 2003 – Dec. 2003
Research Intern	Microsoft Research	May 2002 – Aug. 2002
Research Assistant	University of Michigan	Jan. 2000 – Jun. 2004
Teaching Assistant	Indiana University	Aug. 1999 – Dec. 1999
Lecturer	Informix Authorized Training Center	Oct. 1996 – Jul. 1998
Developer	Boya System Integration Inc	Jan. 1996 – Jul. 1998

Honors and Awards

- Indiana University School of Informatics & Computing Faculty Service Award, 2013
- Indiana University Center for Innovative Teaching and Learning, Scholarship of Teaching and Learning, 2013-2015

- WIC (Women in Computing) Inspirational Teacher Award, 2013
- Indiana University Trustee's Teaching Award. Indiana University. 2012
- Indiana University Trustee's Teaching Award. Indiana University. 2010
- WIC (Women in Computing) Advisor of the Year. Indiana University. 2010
- Best Paper Award, the 26th British National Conference on Databases (BNCOD), 2009.
- My Ph.D. student Sofia Brenes's paper received the Best Paper Award at the *Ph.D. Workshop conjunct to the 11th International Conference on Extending Database Technology (EDBT), 2008*.
- Active Learning Teaching Fellow. Indiana University. 2007.
- Rackham Travel Grant. University of Michigan. 2003.
- Barbour Scholarship. University of Michigan. 2002.
- Graduate Student Research Fellowship. University of Michigan. 2000.
- Graduate Fellowship. Indiana University. 1998-1999.
- GuangHua Graduate Fellowship, 1st Prize (awarded to the top three of the class). Peking University. 1996, 1997, 1998.
- GuangHua Fellowship, 1st Prize (awarded to the top three of the class). Peking University. 1992, 1993, 1994, 1995.
- Procter & Gamble Fellowship (awarded to the top student in the class). Peking University. 1991.

Research

Research Interest

My research focuses on database theory and data management, including storage management, query languages, algebra, indexing, query processing, query optimization and access control. I am also interested in database-related multi-disciplinary research, including the management of domain-specific data, such as bio-informatics and medical-informatics, and the interaction between users and database systems.

List of Publications

Book

- Dongqing Yang, Yuqing Wu, Xiaoyuan Bao, Shiwei Tang, Database system implementation. Translation of the book of the same name by Hector Garcia-Molina, Jeffrey D Ullman and Jenniger Widom.

Journals

1. Jelle Hellings, Marc Gyssens, Jan Paredaens, Yuqing Wu. Implication and axiomatization of functional and constant constraints. in *Annals of Mathematics and Artificial Intelligence*. August 2015 (to appear)
2. George H. L. Fletcher, Marc Gyssens, Dirk Leinders, Jan Van den Bussche, Dirk Van Gucht, Stijn Vansummeren, Yuqing Wu: The impact of transitive closure on the expressiveness of navigational query languages on unlabeled graphs. *Ann. Math. Artif. Intell.* 73(1-2): 167-203 (2015)
3. George H. L. Fletcher, Marc Gyssens, Dirk Leinders, Dimitri Surinx, Jan Van den Bussche, Dirk Van Gucht, Stijn Vansummeren, Yuqing Wu: Relative expressive power of navigational querying on graphs. *Inf. Sci.* 298: 390-406 (2015)
4. George H. L. Fletcher, Marc Gyssens, Dirk Leinders, Jan Van den Bussche, Dirk Van Gucht, Stijn Vansummeren, and Yuqing Wu. The Impact of Transitive Closure on the Expressiveness of Navigational Query Languages on Unlabeled Graphs. *Anal. of Mathematics and Artificial Intelligence*, Apr. 2013.
5. Yuqing Wu, Dirk Van Gucht, Marc Gyssens and Jan Paredaens: A Study of a Positive Fragment of Path Queries: Expressiveness, Normal Form and Minimization. In the *Computer Journal* 54(7): 1091-1118, 2011.
6. Minaxi Gupta, Yuqing Wu, Swapnil S. Joshi, Aparna Tiwari, Ashish Nair, Ezhilan Ilangovan: On the linkability of complementary information from free versions of people databases. *SIGMETRICS Performance Evaluation Review* 40(4): 96-100. 2013.
7. George H. L. Fletcher, Dirk Van Gucht, Yuqing Wu, Marc Gyssens, Sofia Brenes, and Jan Paredaens. A Methodology for Coupling Fragments of XPath with Structural Indexes for XML Documents. In *Information Systems*, 34(7): 657-670. 2009.
8. Yuqing Wu, Stelios Pararizos, and H.V.Jagadish. Querying XML in TIMBER. In *IEEE Bulletin of Technical Committee on Data Engineering*. 31(4):15-24, December. 2008.
9. Yuqing Wu. Path Query. *Encyclopedia of Database Systems*. 2008.
10. Huijun Wang, Jonathan Klinginsmith, Xiao Dong, Adam Lee, Rajarshi Guha, Yuqing Wu, Gordon Crippen, and David Wild. Chemical Data Mining of the NCI Human Tumor Cell Line Database. In *Journal of Chemical Information and Modeling*. 47(6):2063-2076. Nov-Dec, 2007.
11. Surajit Chaudhuri, Zhiyuan Chen, Kyuseok Shim, and Yuqing Wu. Storing XML (with XSD) in SQL Databases: Interplay of Logical and Physical Designs. In *IEEE Transactions on Knowledge and Data Engineering*. 17(12): 1595-1609. 2005.
12. Yuqing Wu, Jignesh Patel, and H. V. Jagadish. Using Histograms to Estimate Answer Size for XML Queries. In *Information Systems – Special Issue: Best Papers from EDBT 2002*, 28 (1-2): 33-59, 2003.
13. H. V. Jagadish, Shurug Al-Khalifa, Adriane Chapman, Laks V.S. Lakshmanan, Andrew Nierman, Stelios Papparizos, Jignesh M. Patel, Divesh Srivastava, Nuwee Wiwatwattana, Yuqing Wu, and Cong Yu. TIMBER: A Native XML Database. In the *VLDB Journal*, 11(4): 274-291, 2002.

Refereed Conference Proceedings

1. Xin Shuai, Xiaozhong Liu, Tian Xia, Yuqing Wu and Chun Guo. Comparing the Pulses of Categorical Hot Events in Twitter and Weibo. In the 25th ACM Conference on Hypertext and Social Media. 2014.
2. Jelle Hellings, Marc Gyssens, Jan Paredaens and Yuqing Wu. Implication and Axiomatization of Functional Constraints on Patterns with an Application to the RDF Data Model. . In the 8th *International Symposium on Foundations of Information and Knowledge Systems* 2014: 250-269.
3. Marc Gyssens, Jan Paredaens, Dirk Van Gucht, Jef Wijsen, Yuqing Wu: An Approach towards the Study of Symmetric Queries. In *Very Large Database*, 2014. 25-36.
4. Yifan Pan and Yuqing Wu. ROU: Advanced Keyword Search on Graph. In the 22th ACM Conference on Information and Knowledge Management. 2013: 1625-1630.
5. Yongming Luo, George H.L. Fletcher, Jan Hidders, Yuqing Wu and Paul De Bra. External memory bisimulation reduction of big graphs. In the 22th ACM Conference on Information and Knowledge Management. 2013:919-928.
6. Yuqing Wu, George H. L. Fletcher: Search on Graphs: Theory Meets Engineering. Invited tutorial at *the 15th Asia-Pacific Web Conference*, 2013: 3-6
7. Yongming Luo, Yannick de Lange, George H. L. Fletcher, Paul De Bra, Jan Hidders, Yuqing Wu: Bisimulation Reduction of Big Graphs on MapReduce. In *Big Data – 29th British National Conference on Databases*. 2013: 189-203.
8. George H. L. Fletcher, Marc Gyssens, Dirk Leinders, Jan Van den Bussche, Dirk Van Gucht, Stijn Vansummeren, Yuqing Wu: The Impact of Transitive Closure on the Boolean Expressiveness of Navigational Query Languages on Graphs. In the 7th *International Symposium on Foundations of Information and Knowledge Systems* 2012: 124-143
9. George H. L. Fletcher, Marc Gyssens, Dirk Leinders, Jan Van den Bussche, Dirk Van Gucht, Stijn Vansummeren, Yuqing Wu: Relative expressive power of navigational querying on graphs. In the 14th *International Conference on Database Theory*, 2011: 197-207.
10. Mo Zhou, Yifan Pan and Yuqing Wu. Efficient Association Discovery with Keyword-based Constraints on Large Graph Data. In *the 20th ACM Conference on Information and Knowledge Management*. October, 2011:2441-2444.
11. Mo Zhou, Yifan Pan and Yuqing Wu. Conkar: Constraint Keyword-based Association Discovery. In *the 20th ACM Conference on Information and Knowledge Management*. October, 2011:2553-2556
12. Vahid Jalali, Mo Zhou, Yuqing Wu, Study of RDB-based RDF Data Management Techniques. In *the 12th International Conference on Web-Age Information Management*, 2011:366-378.
13. Jonathan Klinginsmith, Malika Mahoui, Yuqing Melanie Wu: Towards Reproducible eScience in the Cloud. in the *IEEE 3rd International Conference on Cloud Computing Technology and Science*. pp. 582-586. 2011.
14. Yuqing Wu, Sofia Brenes, and Hyungdae Yi. Workload-aware Trie Indexes for XML. In the 18th *ACM Conference on Information and Knowledge Management*. 2009: 1425-1428.

15. Yuqing Wu, Sofia Brenes, Tejas Totade, Dhaval Damani, Shijin Joshua, and Michel Salim. ASIC: Algebra-based Structural Indices Comparison. In the *18th ACM Conference on Information and Knowledge Management*. 2009. 2111-2112.
16. Yuqing Wu, Namrata Lele, Rashmi Aroskar, Sharanya Chinnusamy and Sofia Brenes. XQGen - An Algebra-based XPath Query Generator For Micro-Benchmarking. In the *18th ACM Conference on Information and Knowledge Management*. 2009. 2109-2110.
17. Yuqing Wu, Dirk Van Gucht, Marc Gyssens, and Jan Paredaens, A Study of a Positive Fragment of Path Queries: Expressiveness, Normal Form and Minimization. In *Dataspace: The Final Frontier, 26th British National Conference on Databases*, pp. 133-145. July, 2009. Best Paper Award.
18. George H. L. Fletcher, Dirk Van Gucht, Yuqing Wu, Marc Gyssens, Sofia Brenes, and Jan Paredaens. A Methodology for Coupling Fragments of XPath with Structural Indexes for XML Documents. In the *11th International Symposium of Database Programming Languages*. September, 2007. Published in the *Lecture Notes in Computer Science Vol.4797*, pp. 48-65. Springer, 2007.
19. Sriram Mohan, Arijit Sengupta, and Yuqing Wu. A Rewrite-based Approach for Enforcing Access Constraints for XML. In the *11th International Conference on Knowledge-based and Intelligent Information and Engineering Systems*. Published in the *Lecture Notes in Computer Science Vol.4694*, pp. 1081-1089. Springer, 2007.
20. Sriram Mohan, and Yuqing Wu. IPAC: An Interactive Approach to Access Control for Semi-Structured Data. In *the Proceedings of the 32nd International Conference on Very Large Data Bases*, pp. 1147-1150. September, 2006.
21. Sriram Mohan, Jonathan Klinginsmith, Arijit Sengupta, and Yuqing Wu. ACXESS - Access Control for XML with Enhanced Security Specification. In *the Proceedings of the 22nd International Conference on Data Engineering*, pp. 171. April, 2006.
22. Yuqing Wu, Jonathan Klinginsmith, and Huanmei Wu. Data Cube Based Tumor Respiratory Motion Characterization. In *the Proceedings of the 48th Annual Meeting of American Association of Physicists in Medicine*, 33(6), pp. 2265. 2006.
23. Jon Klinginsmith, Malika Mahoui, Huanmei Wu, and Yuqing Wu, A Biomedical Patient Data Driven Approach for the Prediction of Tumor, In *the Proceedings of the 48th Annual Meeting of American Association of Physicists in Medicine*, 33(6), pp. 2052. 2006.
24. Sriram Mohan, Arijit Sengupta and Yuqing Wu. Access control for XML: a dynamic query rewriting approach. In *the Proceedings of the 2005 ACM CIKM International Conference on Information and Knowledge Management*, pp. 251-252. October, 2005.
25. Surajit Chaudhuri, Zhiyuan Chen, Kyuseok Shim, and Yuqing Wu. Storing XML (with XSD) in SQL Databases: Interplay of Logical and Physical Designs. In *the Proceedings of the 20th International Conference on Data Engineering*, pp. 842. March, 2004.
26. Stelios Pappas, Yuqing Wu, Laks V. S. Lakshmanan, and H. V. Jagadish. Tree Logical Classes for Efficient Evaluation of XQuery. In *the Proceedings of the ACM SIGMOD International Conference on Management of Data*, pp. 71-82. June, 2004.

27. Stelios Paparizos, Shurug Al-Khalifa, Adriane Chapman, H.V. Jagadish, Laks V.S. Lakshmanan, Andrew Fireman, Jignesh M. Patel, Divesh Srivastava, Nuwee Wiwatwattana, Yuqing Wu, and Cong Yu. TIMBER: A Native System for Querying XML. In the *Proceedings of the 2003 ACM SIGMOD International Conference on Management of Data*, pp. 672. June, 2003.
28. Yuqing Wu, Jignesh Patel and H.V. Jagadish, Structural Join Order Selection for XML Query Optimization. In the *Proceedings of the 19th International Conference on Data Engineering*, pp. 443-454. March, 2003.
29. Tengjiao Wang, Shiwei Tang, Dongqing Yang, Jun Gao, Yuqing Wu, and Jian Pei. COMMIX: Towards Effective Web Information Extraction, Integration and Query Answering. In the *Proceedings of the 2002 ACM SIGMOD International Conference on Management of Data*, pp. 620. June, 2002.
30. Yuqing Wu, Jignesh M. Patel and H.V. Jagadish. Estimating Answer Sizes for XML Queries. In *Advances in Database Technology - The Proceeding of the 8th International Conference on Extending Database Technology*, pp. 590-608. March, 2002.
31. Shurug Al-Khalifa, H. V. Jagadish, Nick Koudas, Jignesh M. Patel, Divesh Srivastava and Yuqing Wu. Structural Joins: A Primitive for Efficient XML Query Pattern Matching. In the *Proceedings of the 18th International Conference on Data Engineering*, pp. 141-143. February, 2002.
32. Yuqing Wu, Dogging Yang, and Shiwei Tang. Sharing Spatial Information among Heterogeneous Geographic Information System, In the Proceeding of *the 15th National Conference on Database Systems (China)*. 1998.

Refereed Workshop Proceedings

1. Yongming Luo, George H. L. Fletcher, Jan Hidders, Paul De Bra, Yuqing Wu: Regularities and dynamics in bisimulation reductions of big graphs. In *the 1st International Workshop on Graph Data Management Experiences and Systems, co-located with SIGMOD/PODS*, 2013: 13.
2. Minaxi Gupta, Yuqing Wu, Swapnil S. Joshi, Aparna Tiwari, Ashish Nair, and Ezhilan Ilangovan. On the Linkability of Complementary Information from Free Versions of People Databases. ACM workshop on Privacy and Anonymity for the Digital Economy (PADE), held in conjunction with SIGMETRICS/Performance 2012.
3. Mo Zhou, and Yuqing Wu. XML-Based RDF Data Management for Efficient Query Processing. In the *13th International Workshop on the Web and Databases*. June, 2010.
4. Jonathan Klinginsmith, Malika Mahoui, Yuqing Wu, and Josette Jones, Discovering Domain Specific Concepts within User-Generated Taxonomies. In the *3rd International Workshop on Domain Driven Data Mining*, held in conjunction to the *2009 International Conference on Data Mining*. pp. 19-24. 2009.
5. Sofia Brenes, Yuqing Wu, Dirk Van Gucht, and Pablo Santa Cruz. Trie Indexes for Efficient XML Query Evaluation. In the *11th International Workshop on the Web and Databases*. June, 2008.
6. Sofia Brenes, (Advisor Yuqing Wu), Structural Summaries for Efficient XML Query Processing. In the *Ph.D. Workshop of conjunct to the 11th International Conference on Extending Database Technology*. March, 2008. Best Paper Award.

7. George H. L. Fletcher, Dirk Van Gucht, Yuqing Wu, Marc Gyssens, and Jan Paredaens. Coupling Fragments of XPath with XML Indexing and Query Decomposition. In the *Proceedings of the 1st Workshop on Emerging Research Opportunities for Web Data Management (EROW 2007) Collocated with the 11th International Conference on Database Theory (ICDT 2007)*. January, 2007.
8. Stelios Paparizos, Shurug Al-Khalifa, H. V. Jagadish, Laks V.S. Lakshmanan, Andrew Nierman, Divesh Srivastava, and Yuqing Wu. Grouping in XML. In the *EDBT Workshop on XML-based Data Management and Multimedia Engineering (XMLDM'02)*, Published in Springer-Verlag, *Lecture Notes in Computer Science Vol.2490*, pp. 128-147. 2002.

Software Artifacts

1. Mo Zhou, Yifan Pan and Yuqing Wu. Conkar: Constraint Keyword-based Association Discovery. In the *20th ACM Conference on Information and Knowledge Management*. October, 2011.
2. Yuqing Wu, Sofia Brenes, Tejas Totade, Dhaval Damani, Shijin Joshua, and Michel Salim. ASIC: Algebra-based Structural Indices Comparison. In the *18th ACM Conference on Information and Knowledge Management November, 2009*.
3. Yuqing Wu, Namrata Lele, Rashmi Aroskar, and Sharanya Chinnusamy. XQGen - An Algebra-based XPath Query Generator For Micro-Benchmarking. In the *18th ACM Conference on Information and Knowledge Management*. November, 2009.
4. Sriram Mohan, and Yuqing Wu. IPAC: An Interactive Approach to Access Control for Semi-Structured Data. Demo at the *32nd International Conference on Very Large Data Bases*. September, 2006.
5. Sriram Mohan, Jonathan Klinginsmith, Arijit Sengupta, and Yuqing Wu. ACXESS - Access Control for XML with Enhanced Security Specification. Demo at the *22nd International Conference on Data Engineering*. April, 2006.
6. Stelios Paparizos, Shurug Al-Khalifa, Adriane Chapman, H.V. Jagadish, Laks V.S. Lakshmanan, Andrew Nierman, Jignesh M. Patel, Divesh Srivastava, Nuwee Wiwatwattana, Yuqing Wu, and Cong Yu. TIMBER: A Native System for Querying XML. Demo at the *2003 ACM SIGMOD International Conference on Management of Data*. June, 2003.
7. Tengjiao Wang, Shiwei Tang, Dongqing Yang, Jun Gao, Yuqing Wu, and Jian Pei. COMMIX: Towards Effective Web Information Extraction, Integration and Query Answering. Demo at the *2002 ACM SIGMOD International Conference on Management of Data*. June, 2002.

Other Publications

1. Vahid Jalali, Mo Zhou, Yuqing Wu, Study of RDB-based RDF Data Management. Techniques. Technical Report 694, Computer Science Department, Indiana University, 2011.
2. Mo Zhou, Yifan Pan and Yuqing Wu. Efficient Association Discovery with Keyword-based Constraints on Large Graph Data. Technical Report 692, Computer Science Department, Indiana University, 2011.

3. Mo Zhou, and Yuqing Wu. XML-Based RDF Data Management for Efficient Query Processing. Technical Report 683, Computer Science Department, Indiana University, 2010.
4. Sofia Brenes, Yuqing Melanie Wu, and Hyungdae Yi. Workload-aware Trie Indexes for XML, Technical Report 673, Computer Science Department, Indiana University, January, 2009.
5. Yuqing Wu, Dirk Van Gucht, Marc Gyssens, and Jan Paredaens. A Study of Positive XPath with Parent/Child Navigation, Technical Report 660, Computer Science Department, Indiana University, March, 2008.
6. George H. L. Fletcher, Dirk Van Gucht, Yuqing Wu, Marc Gyssens, and Jan Paredaens. A Methodology for Coupling Fragments of XPath with Structural Indexes for XML Documents. Technical Report 639, Computer Science Department, Indiana University. October, 2006.
7. Sriram Mohan, Arijit Sengupta, and Yuqing Wu. A Framework for Access Control for XML. Technical Report 633, Computer Science Department, Indiana University. July, 2006.
8. Sriram Mohan, Arijit Sengupta, Yuqing Wu, and Jonathan Klinginsmith. Access Control for XML - A Dynamic Query Rewriting Approach. Technical Report 609, Computer Science Department, Indiana University. February, 2005.

Research Grants

- XPS: EXPL: FP: Symmetric Queries as a Building Block for Efficient Parallel Query Evaluation. NSF. 2014-2017. \$297,592. PI.
- Empowering Health Care with Innovative Technologies of the Semantic Web. Indiana University Faculty Research Support Program (FRSP). 2010-2011, \$46541. Co-PI.
- Asian American Students and Access to Higher Education. Summer Research Grant, College of Art and Sciences, Indiana University, 2009-2010. \$8,000. Co-PI.
- ACXESS: Access Control for XML with Enhanced Security Specification. Indiana University Faculty Research Support Program (FRSP). 2005-2006, \$30,600. PI.
- Chemical Informatics and Cyber infrastructure Collaboration program. NIH. 2004-2007. \$731,750. Senior Participant.

Patents

- US Patent No. 7451144 – Method of Pattern Searching. Nick Koudas, Divesh Srivastava, Jignesh Paten, Shurug Al-Khalifa, H.V. Jagadish, Yuqing Wu. Issued Nov. 8, 2008.
- US Patent No. 7228312 – Transformation tool for mapping XML to relational database. Surajit Chaudhuri, Zhiyuan Chen, Kyuseok Shim, Yuqing Wu. Issued June 5, 2007.

Invited Talks

- Invited talk at the SIKS symposium on Data Engineering for Data Science at the Eindhoven University of Technology, the Netherlands: Looking through the Lens of Social Media. March 2015.
- Invited talk at the ICT-OPEN conference: Computing Culture. March 2015.
- Panelist at Grace Hopper Conference, Quiet Success. Nov, 2013.
- Invited tutorial at APWeb Conf, Apr. 2013.
- Invited talk at IUPUI: Graph Management and Search. Nov. 2012
- Invited talk at Peking University, China: Keyword Search on Graph Data. May. 2012
- Invited talk at Chinese University of Hong Kong, China: Search the Graph. May. 2012
- Invited talk at Delft University of Technology, Netherlands: Searching the Graph. Mar. 2012
- Invited talk at Eindhoven University of Technology, Netherlands: Searching the Graph. Mar. 2012
- Invited talk at University of Antwerp, Belgium: Efficient Keyword search in the Graph. Mar. 2012
- Invited talk at Hasselt University, Belgium: Efficient Keyword search in the Graph. Mar. 2012
- Invited talk to the D2I colloquium: Search Queries – How to ask them and answer them. Oct 2011.
- Expert panelist for “Teaching in Computer Science” Seminar, fall 2011.
- Invited lectures for I400-Health Informatics. Spring 2011
- Invited lectures for B461-Database Concepts, spring 2011.
- Invited to teach summer class at Renmin University. Web-era Data Management. July 2010.
- Invited talk at NanKai University. Weaving the Web. Jun. 2010.
- Invited talk at NanKai University. A Methodology for Efficient XML Query Processing. Jun. 2010
- Invited talk at Peking University, Structural Summaries for Efficient XML Query Processing. May, 2008.
- Invited talk at TianJin Normal University, Efficient Evaluation of Semi-structured Data. May, 2008.
- Invited talk at Renmin University, Structural Summaries for Efficient XML Query Processing. May, 2008.
- Invited talk at Indiana University-Purdue University, Indianapolis (IUPUI), Coupling Theoretical Study of Query Language and System Design. Apr, 2008.
- Invited talk at Data and Search Institute, Indiana University. Coupling Fragments of XPath Algebra with Structural Indices of XML Documents. Oct, 2007.

- Invited talk at Informatics Colloquium of Indiana University. Securing Access to XML Data. Sep, 2006.
- Invited talk at COE (Center of Excellency), Indianapolis, Medical Data Processing. Mar, 2006.
- Invited talk at Google Inc., XML – The Research and Implementation. Nov. 2005.
- Invited talk at Computer & Information Technology Colloquium at Indiana University-Purdue University, Indianapolis (IUPUI). XML – The Research and Implementation. Sep. 2005.
- Invited talk at Peking University, China, XML Query Processing and Optimization. Jun. 2005.
- Invited talk at University of Toronto. Tree Logic Class for Efficient XML Query Processing. May 2005.
- Invited talk at Oakland University. XML Query Processing and Optimization. Oakland University. Mar, 2005.
- Invited talk at the Women in Computing (WIC) technical colloquium, Storing and Querying Semi-structural (XML) Data. Nov. 2004.
- Expert panelist at CASCON (IBM Centers for Advanced Studies Conference). Oct. 2002.

Teaching

Teaching Summary

I have been heavily involved in curriculum development and have taught courses related to data and information management at both the undergraduate and the graduate levels. I have taught multiple different courses, including four that I proposed and designed, and have frequently guest-lectured in other courses. Besides serving as research advisor and as a research committee member for numerous Ph.D. students, I have supervised Ph.D., MS and undergraduate students via independent study courses and research reading courses, many of which led to successful publications.

Courses Development Activities

Undergraduate Courses

- Awarded the Active Learning Fellowship by Indiana University in 2007 for adopting active learning techniques in the redesign of the *Information Representation* course.
- Proposed and design the undergraduate course *Database Application Design and Implementation* for Computer Science Program. Taught the course in spring 2011.
- Proposed and design the undergraduate course *Web-based Database Application Design and Implementation* for Informatics Department. Taught the course in fall 2006-2008. Incorporated term-long projects into the course's syllabus. Some of the projects led to undergraduate capstone projects and software products.

- Taught Informatics undergraduate core course *Information Representation* 2005-2009. Redesign and readjust the course material and teaching methods for each of the offering, supported by Indiana University Active Learning Fellowship.
- Supervised student research projects through *Undergraduate Independent Study* courses and Undergraduate Research Opportunities in Computing (UROC) program.

Graduate Courses

- Proposed and designed the advanced seminar course *Managing Semi-structured and Un-structured Data* for the Computer Science program. Taught the course in spring 2013.
- Proposed and designed the advanced graduate course *Database Systems and Internal Design* for the Computer Science Department. Taught the course in spring 2006-2011, 2013-2014. Incorporated term-long research projects into the course's syllabus. Seven course projects led to publications/submission.
- Taught graduate level database course *Advanced Database Concepts* in CS in fall 2009-2013.
- Taught graduate level introductory course *Fundamental Computer Concepts in Informatics* in fall 2004.
- Co-taught the *Data and Search Informatics* course in fall 2008.
- Supervised student research projects through *Independent Study*, *Advanced Research*, and *Thesis Readings and Research* courses.

Guest Lectures

- Invited to teach guest lectures in the courses *Advanced Database Concepts*, *Introduction to Informatics*, *Computer Science Undergraduate Honor Seminar*, *Health Informatics*, *Seminar in Chemical Informatics* and *Seminar in Teaching in Computer Science*.

Students Supervised

As chair of research committee

2004-2007	Sriram Mohan	<i>ACXESS - A Framework for Designing Specifying and Enforcing Access Control for XML</i> Ph.D. 2007 Currently Associate Professor, Rose-Hulman Institute of Technology
2006-2011	Sofia Brenes	<i>Structural Summary of XML for Efficient Query processing</i> Ph.D. 2011 Currently at Google Inc.
2008-2014	Mo Zhou	<i>Efficient Data Management and Keyword-based Association Discovery on Graph Data of Large Scale</i>

Ph.D. 2014

Currently at Microsoft Inc.

2009-2015 Yifan Pan Keyword Search on Graph Data
Ph.D. 2015

As member of research committee

2006-2007 Ying Liu *Query Optimization for Distributed Stream Processing* (Ph.D. 2007)

2005-2007 Yi Huang *Scalable Web Service-Based XML Message Brokering Across Organizations* (Ph.D. 2007)

2007-2008 Hui Zhang *Physically Interacting with Four Dimensions* (Ph.D. 2008)

2006-2009 Ahmet Sayar *High Performance, Federated, Service-Oriented Geographic Information Systems* (Ph.D. 2009)

2009-2010 Scott Jensen *An Adaptable Repository for Complex Scientific Metadata* (PhD. 2010)

2009-2011 Jay Powell *A Generic Web-based Knowledge Discovery Framework for Case-based Reasoning.* (Ph.D. 2011)

2010- Yiming Sun *From Complex Computational Science Experiments to Preserved Research Objects*

2012-2013 You-wei Cheah *Quality, Retrieval and Analysis of Provenance in Large-Scale Data* (Ph.D. 2013)

2013-2015 Yuan Luo *Virtual Cluster Management for Analysis of Geographically Distributed and Immovable Data* (Ph.D. 2015)

2013- Jose Lugo-Martinez TBA

As chair of advisory committee

2008- Jonathon Klinginsmith

2008- Mo Zhou

2010- Yifan Pan

2014- Fei Teng

As member of advisory committee

2005-2006 Ying Liu

2005-2008	Hui Zhang
2006-2009	Scott Jensen
2006-2008	Xiao Dong
2008-2009	Heejoon Chae
2008-2009	Jay Powell
2010-2012	Youwei Cheah
2010-2013	Yuan Luo
2011-2012	Pairog Dattadilok
2011-2013	Tak-Lon Wu
2011-2013	Jiaan Zeng
2011-2013	Chris Dunn
2012-2013	Tak-lon Wu
2012-2013	Vahid Jalali
2012-2013	Volodymyr Bulakh
2012-2013	Zong Peng
2012-2013	Dae Wook Kim
2013-2014	Quan Zhou
2013-2014	Jingya Wang

- Supervised student research projects through *Independent Study*, *Advanced Research*, and *Thesis Readings and Research* courses for a total of over 200 credit hours. The following are the students with whom I co-authored papers and demos.

<i>Student</i>	<i>publications</i>
Sofia Brenes	1 journal paper, 5 conference papers, 1 workshop paper, 2 software artifacts, 2 technical reports
Jonathan Klinginsmith	1 journal paper, 5 conference papers, 1 workshop paper, 1 software artifact, 1 technical report
Huijun Wang	1 journal paper
Pablo Santa Cruz	1 conference paper
Sriram Mohan	4 conference papers, 2 software artifacts, 2 technical reports
Mo Zhou	2 conference paper, 1 workshop paper,

	1 software artifact, 3 technical reports
Yifan Pan	3 conference paper, 1 software artifact, 1 technical report
Vahid Jalali	1 conference paper
Hyungdae Yi	1 conference paper
Tejas Totade	1 software artifact
Dhaval Damani	1 software artifact
Shijin Joshua	1 software artifact
Michel Salim	1 software artifact
Namrata Lele	1 software artifact
Rashmi Aroskar	1 software artifact
Sharanya Chinnusamy	1 software artifact

Teaching Grants and Awards

IU CITL	Scholarship of Teaching and Learning	2013-2015	(grant)
IU WIC	Inspirational Teacher Award	2011-2012	
IU	Trustee's Teaching Award	2011-2012	
IU	Trustee's Teaching Award	2009-2010	
IU WIC	Advisor of the Year	2009-2010	
IU ISS	Active Learning Award (Learning via Group Activities)	2007-2008	(grant)

Service

Professional Service

Conference Organization

Publicity chair for Symposium on Principles of Database Systems (PODS)	2010
Workshop local arrangements chair for the ACM SIGMOD International Conference on Management of Data	2010
Local organizer for Midwest Database symposium	2005 - 2008
Organizer of the Indiana Women In Computer Conference (InWIC)	2008

Journal Review

ACM Transactions on Database Systems (TODS)
VLDB Journal (VLDBj)
Data & Knowledge Engineering (DKE)
IEEE Transactions on Knowledge and Data Engineering (TKDE)
World Wide Web journal (WWWj)
Information Systems (IS)
ACM Computing Survey
Information Science (INS)
Journal of Systems and Software (JSS)
ACM Transaction on Internet Technology
Software: Practice and Experience (SPE)
Journal of Electronics and Telecommunication Research Institute (ETRIJ)
Concurrency and Computation: Practice and Experience (CCPE)
Computer Science Review Journal
Journal of Computer Science and Technology (JCST)

Conference Program Committee

ACM International Conference on Management of Data (SIDMOD)	2011
International Conference on Very Large Data Bases (VLDB)	2009, 2011, 2012
IEEE International Conference on Data Engineering (ICDE)	2007, 2008, 2009, 2011, 2012, 2013
IEEE International Conference on Data Theory (ICDT)	2013
International Conference on Extending Database Technology (EDBT)	2013
ACM Conference on Information and Knowledge Management (CIKM)	2008, 2009, 2010, 2011
Web-Age Information Management	2011, 2013
International Conference on Knowledge Management and Information Sharing (KMIS)	2009
International Conference on Networked Digital Technologies (NDT)	2009
Asia Pacific Web Conference (APWeb)	2008, 2011, 2012,

	2013
ACM Conference on Computer And Communication Security	2007
IEEE International Conference on Advanced Information Networking and Application	2007

Workshop Program Committee

<i>Workshop title</i>	<i>Held in conjunction with</i>	<i>Year</i>
ACM International Workshop on Web Information and Data Management	ACM Conference on Information and Knowledge Management (CIKM)	2008
SIGMOD PhD workshop on Innovative Database Research (IDAR)	ACM SIGMOD International Conference on Management of Data	2007, 2008
VLDB PhD workshop	International Conference on Very Large Data Bases (VLDB)	2007, 2013
International XML Database Symposium (XSym)	ACM SIGMOD International Conference on Management of Data	2005, 2006, 2011
International Workshop on Database Interoperability (InterDB)	IEEE International Conference on Data Engineering (ICDE)	2006
IEEE International Workshop on Mining Evolving and Streaming Data	IEEE International Conference on Data Mining (ICDM)	2006
International Workshop on Web-based Massive Data Processing	International Conference on Web Information System Engineering	2006
International Workshop on Conceptual Model-Directed Web Information Integration and Mining (CoMWIM)	International Conference on Conceptual Modeling (ER)	2004

Grant Review

National Science Foundation	2013
Indiana University FRSP	2011, 2012
Kentucky Science and Engineering Foundation	2006

Book Review

WIREs Data Mining and Knowledge Discovery (Wiley)
Security in Decentralized Data Management

Professional Memberships

IEEE Computer Society

Association for Computing Machinery (ACM)

National Organization

Professional Organization

ACM-W Executive Council, Communication Committee Chair 2012 –

University Service

School representative on Indiana University's Council on Student Affairs 2014 –

Faculty mentor of OWA (Office of Women's Affair) 2011 –

Faculty advisor for AGEP (Alliance for Graduate Education and the Professoriate) of Indiana University 2005 –

Council member of Indiana University Asian Pacific American Faculty & Staff Community Council (APAFSC) 2005 –

School Service

Faculty advisor for Asian Information & Computing Community (AICC) 2014 –

School Curriculum Committee 2013 – 2014

Curriculum Committee of Data and Science Program 2013 – 2-14

School of Informatics Teaching Award Committee 2011

Globalization Committee 2005 – 2007

Faculty advisor for Women in Computer (WIC) 2004 –

Recruitment visits to universities in China 2005, 2008

Departmental Service

Director of Ph.D. Studies Computer Science Program 2012 – 2014

Chair of Graduate Education Computer Science Program 2012 – 2014
Committee

Graduate Program Committee Computer Science Program 2010 – 2012

Faculty Affairs Committee Computer Science Department 2008 – 2009

Graduate Admission and Awards Computer Science Department 2004 – 2012
Committee

Systems Prelim Exam Committee Computer Science Department 2005 – 2006

Graduate Program Committee Informatics Department 2006 – 2007

Graduate Admission Committee

Informatics Department

2004 – 2006

Service Awards

IU School of Informatics &
Computing

Faculty Service Award

2013