

**Contact Information**

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**Education**

Dr. rer. nat. (Computer Science), University of Hannover, Germany, 1996

Thesis: *Diagnosis and Repair of Constraint Violations in Database Systems*

Diploma (Computer Science), University of Dortmund, Germany, 1991

**Professional Experience**

Professor (W3), Institute of Computer Science, Ruprecht-Karls-University of Heidelberg, Germany, October 2008–present

Associate Professor of Computer Science, Member of the Graduate Group in Computer Science, University of California, Davis, California, July 2003–October 2008

Affiliated Faculty Member, California Space Institute (CalSpace) at Davis, University of California, Davis, California, 2003–October 2008

Assistant Professor of Computer Science, Member of the Graduate Group in Computer Science, University of California, Davis, California, October 1997–June 2003

Member of the Graduate Group in Medical Informatics (called Health Informatics since 2005), University of California, Davis, California, 1999–October 2008

Visiting Faculty, IBM Almaden Research Center, San Jose, CA, Summer 2002

Participating Guest Researcher, Lawrence Livermore National Labs (LLNL), University of California, Livermore, June 2000–June 2001

Research/Teaching Assistant, Department of Computer Science, University of Hannover, Germany, October 1996–October 1997

**Principal Research Areas and Interests**

## Scientific Data Management

- Processing and querying (streaming) geospatial data
- Geospatial and spatio-temporal data, spatial data mining
- Data integrity and data quality
- Integration of geospatial data and sensor data

## Information Retrieval and XML Data Management

- Integration of XML Document and Data Retrieval (XQuery/IR)
- Temporal information retrieval

## Database and Information Systems Security

- Vulnerability analysis, anomaly and insider misuse detection in databases
- Authentic third party data publication schemes

## Teaching Activities

At the University of Heidelberg:

- Spatial Databases (WS 2008/09), Seminar “Web Technologies for Managing Scientific Data” (WS 2008/09), Databases I (SS 2009), Seminar “Data Mining” (SS 2009)

At the University of California at Davis, until October 2008:

- Undergraduate courses in Database Systems: Introduction to Database Systems (ECS 165A), Advanced Database Systems (ECS 165B), Scientific Data Management (ECS 166, Fall 2005, with Bertram Ludäscher)
- Graduate Courses in Database Systems: Database Security (Spring‘98), Distributed Databases (Spring‘99,‘01,‘03, ‘06), Information Systems Interoperability (Spring‘00), Logics and Knowledge Representation (Spring‘02, ‘04, Graduate Course in Theory), Spatial Databases (Winter ‘06, Spring ‘08)
- Other Computer Science classes: Basic Concepts of Computing (Winter & Spring‘08)

## Editorial Boards

Associate Editor: ACM Journal of Data and Information Quality

Editorial Board: The VLDB Journal (Springer)

## (Edited) Books and Book Chapters

8. Gertz, M., Rueda, C., Zhang, J. (2009): Interoperability and Data Integration in the Geosciences. To appear in A. Shoshani and D. Rotem (editors) *Scientific Data Management: Challenges, Existing Technology, and Deployment*, Taylor & Francis.
7. Gertz, M., Jajodia, S. (2007): Editors, *The Handbook of Database Security: Applications and Trends*, Springer, Berlin, ISBN-13: 978-0387485324.
6. Gertz, M., Gandhi, M. (2007): Security Re-engineering for Databases: Concepts and Techniques. In Gertz, M., Jajodia, S. (editors) *The Handbook of Database Security: Applications and Trends*, pages 267–295.
5. Gertz, M., Rosenthal, A. (2006): Database Security. In Bidgoli, H. (editor) *Handbook of Information Security, Threats, Vulnerabilities, Prevention, Detection and Management*, pages 380–395, Wiley.
4. Naumann, F., Gertz, M., Madnick, S. (2005): Editors of *10th International Conference on Information Quality*, MIT, Cambridge, MIT School of Management.
3. Gertz, M. (2003): Editor of *Integrity and Internal Control in Information Systems V*, Kluwer Academic Publishers, Proceedings of the 5th International IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control, Bonn, Germany.
2. Gertz, M., Guldentops, E., Strous, L., (2002): Editors of *Integrity, Internal Control and Security in Information Systems - Connecting Governance and Technology*. Kluwer Academic Publishers. Proceedings of the 4th International IFIP WG11.5 Working Conference on Integrity and Internal Control, Brussels, Belgium, November 2001.
1. Gertz, M. (1996), *Diagnosis and Repair of Constraint Violations in Database Systems*, DISDBIS Volume 19, infix Publisher, ISBN 3-89601-419-6, 194 pages

## Journal Articles

16. Franke, C., Kernstedt, M., Klan, D., Gertz, M., Sattler, K.U., Chervakova, E. (2009): In-Network Detection of Anomaly Regions in Sensor Networks with Obstacles. To appear in *Computer Science - Research and Development* (Springer).
15. Zhang, J., Gruenwald, L., Gertz, M. (2009): VDM-RS: A Visual Data Mining System for Exploring and Classifying Remotely Sensed Images, in *Computers & Geosciences* (Elsevier) 35(9):1827–1836.
14. Zhang, J., Hart, Q., Gertz, M., Rueda, C., Bergamini, J. (2009): Sensor data dissemination systems using Web-based standards: A case study of publishing data in support of evapotranspiration models in California. In *Civil Engineering and Environmental Systems* (Taylor and Francis, UK) Special Issue on Environmental Sensing, Informatics and Decision Making, 26(1):35-52.
13. Alonso, O., Gertz, M., Baeza-Yates, R. (2007): On the Value of Temporal Information in Temporal Information Retrieval, *SIGIR Forum*, December 2007, 41(2):35–41.
12. Jankun-Kelly, T.J., Ma, K.-L., Gertz, M. (2007): A Model and Framework for Visualization Exploration. *IEEE Transactions on Visualization and Computer Graphics* Vol 13, No 2, pp. 357-369.
11. Bremer, J.-M., Gertz, M. (2006): Integrating Document and Data Retrieval Based on XML. In *the VLDB Journal*, Vol 15, No 1, pp. 53-83.
10. Devanbu, P., Gertz, M., Kwong, A., Martel, C., Stubblebine, S. (2004): Flexible Authentication of XML Documents. In *Journal of Computer Security*, Vol 12, No. 6/2004, pp. 841–864.
9. Gertz, M., Kwong, A., Martel, C., Nuckolls, G., Devanbu P., Stubblebine, S. (2004): Databases that tell the Truth: Authentic Data Publication. In *Bulletin of the Technical Committee on Data Engineering*, March 2004, Vol 7, No 1, pp. 21–41.
8. Gertz, M., Özsu, T., Saake, G., Sattler, K.-U. (2004): Report on the Dagstuhl Seminar "Data Quality on the Web". In *SIGMOD Record*, Vol 33, No 1, March 2004.
7. Martel, C., Nuckolls, G., Devanbu, P., Gertz, M., Kwong, A., Stubblebine, S. (2004): A General Model for Authentic Data Publication. In *Algorithmica*, Vol 39, No 1.
6. Devanbu, P., Gertz, M., Martel, C., Stubblebine, S. (2003): Authentic Data Publication over the Internet. In *Journal of Computer Security*, Vol 11, No. 3/2003, pp. 291–314
5. Srinivas, P.R., Gusfield, D., Mason, O., Gertz, M., Hogarth, M., Stone, J., Jones, E.G., Gorin, F.A. (2003): Neuroanatomical Term Generation and Comparison Between Two Terminologies. In *Neuroinformatics Journal*, Volume 1, Issue 2, pp. 177-192.
4. Türker, C., Gertz, M. (2001): Semantic Integrity Support in SQL:1999 and Commercial (Object-) Relational Database Management Systems. *The VLDB Journal*, Volume 10, Number 4, pp. 241-269.
3. Gorin, F., Hogarth, M., Gertz, M. (2000): The Challenges and Rewards of Integrating Diverse Neuroscience Information. In *The Neuroscientist*, Vol 7(1), pp. 18–28, Sage Science Press
2. Gertz, M. and Lipeck, U. (1996): Deriving Optimized Integrity Monitoring Triggers from Dynamic Integrity Constraints, *Data & Knowledge Engineering*, 20:2, pp. 163–194
1. Lipeck, U., Gertz, M., Saake, G. (1995): Transitional Monitoring of Dynamic Integrity Constraints, *Bulletin of the Technical Committee on Data Engineering* (Special Issue on Database Constraint Management), 17:1, pp. 38–42

## Conferences and Workshops<sup>1</sup>

58. Zhang, J., Gertz, M., Gruenwald, L. (2009): Efficiently Managing Large-Scale Raster Species Distribution Data in PostgreSQL. To appear in 17 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems. (38/185)
57. Alonso, O., Gertz, M., Baeza-Yates, R. (2009): Clustering and Exploring Search Results using Timeline Constructions. To appear in the 18th ACM Conference on Information and Knowledge Management (CIKM'09). (123/847)
56. Franke, C., Gertz, M. (2009): ORDEN: Outlier Region Detection and Exploration in Sensor Networks (demo paper). ACM SIGMOD International Conference on Management of Data (SIGMOD'09), 1075–1078.
55. Franke, C., Karnstedt, M., Klan, D., Gertz, M., Sattler, K.-U., Kattanek, W. (2009): In-Network Detection of Anomalous Regions in Sensor Networks with Obstacles. In 13. GI-Fachtagung Datenbanksysteme für Business, Technologie und Web, LNI 144 GI, 367–386.
54. Alonso, O., Baeza-Yates, R., Gertz, M. (2009): Effectiveness of Temporal Snippets. Workshop on Web Search Result Summarization and Presentation (together with WWW 2009).
53. Franke, C., Gertz, M. (2008): Detection and Exploration of Outlier Regions in Sensor Data Streams. In International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM-08), in Cooperation with IEEE ICDM 2008, 375–384.
52. Zhang, J., He, K.S., Gertz, M. (2008): LEEASP: A Linked Environment of Coordinated Multiple Views for Exploratory Analysis of Large-Scale Species Distribution Data. In Environmental Information Management Conference 2008, Albuquerque, New Mexico, 172–177.
51. Rueda, C., Gertz, M. (2008): Real-time Integration of Geospatial Raster and Point Data Streams. In 20th International Conference on Scientific and Statistical Data Management (SS-DBM), LNCS 5069, 605–611.
50. Alonso, O., Devanbu, P., Gertz, M. (2008): Expertise Identification and Visualization from CVS. In 5th Working Conference on Mining Software Repositories (MSR 2008), 125–128.
49. Alonso, O., Gertz, M., Baeza-Yates, R. (2008): Time and Information Retrieval. To appear in Liu, Ling; Özsu, M. Tamer (eds.), *Encyclopedia of Database Systems*, Springer.
48. Rueda, C., Gertz, M. (2007): Modeling Satellite Image Streams for Change Analysis. In 15th ACM International Symposium on Advances in Geographic Information Systems (ACM GIS 2007), ACM, 43–50. (37/129)
47. Zinn, D., Bosch, J., Gertz, M. (2007): Modeling and Querying Vague Spatial Objects Using Shapelets. In 33rd International Conference on Very Large Data Bases (VLDB 2007), 567-578. (46/263 in Core Database Technology Track), 567–578.
46. Alonso, O., Gertz, M., Baeza-Yates, R. (2007): Search Results using Timeline Visualizations (demo paper). In SIGIR 2007, 908.
45. Alonso, O., Baeza-Yates, R., Gertz, M. (2007): Exploratory Search Using Timelines. In Exploratory Search and HCI (SIGCHI 2007 Workshop), 2007.
44. Hart, Q., Gertz, M. (2006): Optimization of Multiple Continuous Queries over Streaming Satellite Data. In 14th ACM International Workshop on Geographic Information Systems, ACM-GIS 2006, 243–250. (32/99)

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<sup>1</sup>Some conferences and workshops are very selective, with rigorous peer reviewing and archival published proceedings. In some of these cases the acceptance rate is given (papers accepted/papers submitted)

43. Alonso, O., Gertz, M. (2006): Clustering of Search Results using Temporal Attributes. In 29th Annual International ACM SIGIR Conference on Research and Development on Information Retrieval, Seattle 2006, pp. 597–598. (52/140)
42. Ceesay, E.N., Zhou, J., Gertz, M., Levitt, K., Bishop, M. (2006): Using Type Qualifiers to Analyze Untrusted Integers and Detecting Security Flaws in C Programs. In SIG SIDAR Conference on Detection of Intrusions and Malware and Vulnerability Assessment, LNCS 4064, Springer. (11/41)
41. Bird, C., Gourley, A., Devanbu, P., Swaminathan, A., Gertz, M (2006): Mining Email Social Networks. In ICSE 2006 International Workshop on Mining Software Repositories (MSR 2006), pp. 137–143.
40. Bird, C., Gourley, A., Devanbu, P., Swaminathan, A., Gertz, M (2006): Mining email social networks in Postgres. In ICSE 2006 International Workshop on Mining Software Repositories (MSR 2006), pp. 185–186.
39. Rueda, C., Gertz, M., Ludäscher, B., Hamann, B. (2006): An Extensible Infrastructure for Processing Distributed Geospatial Data Streams. In 18th International Conference on Scientific and Statistical Database Management (SSDBM06), pp. 285–290.
38. Gertz, M., Hart, Q., Rueda, C., Singhal, S., Zhang, J. (2006): A Data and Query Model for Streaming Geospatial Image Data. In EDBT Workshops (11th International Workshop on Foundations of Models and Languages for Data and Objects), Revised Selected Papers. LNCS 4254, Springer, 687–699.
37. Hart, Q., Gertz, M., Zhang, J. (2005): Evaluation of a Dynamic Tree Structure for Indexing Query Regions on Streaming Geospatial Data. In the 9th International Symposium on Spatial and Temporal Databases (SSTD05), LNCS 3633, Springer, 145–162. (24/77)
36. Hart, Q., Gertz, M. (2005): Querying Streaming Geospatial Image Data: the GeoStreams Project. In the 17th International Conference on Scientific and Statistical Database Management (SSDBM 2005).
35. Zhang, J., Gertz, M., Aksoy, D. (2004): Spatio-Temporal Aggregates over Raster Image Data. In 12th International Symposium of ACM GIS. ACM Press, pp. 39–46. (30/90)
34. Hart, Q., Gertz, M. (2004): Indexing Query Regions for Streaming Geospatial Data. In 2nd Workshop on Spatio-temporal Database Management - STDBM'04 (co-located with VLDB 2004), pp. 49-56.
33. Alonso, O., Devanbu, P., Gertz, M. (2004): Database Techniques for the Analysis and Exploration of Software Repositories. In MSR 2004: International Workshop on Mining Software Repositories.
32. Devanbu, P., Gertz, M., Toone, B. (2003): Static Type-inference for Trust in Distributed Information Systems. In OTM Confederated International Conferences, CoopIS, DOA, and ODBAS, LNCS 2888, Springer, pp. 370-388. (32/138)
31. Bremer, J.-M., Gertz, M. (2003): On Distributing XML Repositories. In 6th International Workshop on the Web and Databases (WebDB 2003), in conjunction with SIGMOD 2003, pp. 73-78. (17/67)
30. Gertz, M., Csaba, G. (2003): Monitoring Mission Critical Data for Integrity and Availability. In 5th International IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control, Kluwer Academic Publishers, pp. 189–201.

29. Gertz, M. (2003): Opportunities and Challenges in Tracing Security Breaches. In 5th International IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control, Kluwer Academic Publishers, pp. 223–226.
28. Toone, B., Gertz, M., Devanbu, P. (2003): Trust Mediation for Distributed Information Systems. In 18th International Information Security Conference (SEC 2003), Kluwer Academic Publisher, pp. 1–12. (33/121)
27. Gertz, M., Sattler, K.-U. (2002): Integrating Scientific Data through External, Concept-based Annotations. In *Efficiency and Effectiveness of XML Tools and Techniques and Data Integration over the Web (VLDB 2002 Workshop EEXTT and CAiSE 2002 Workshop DIWeb. Revised Papers)*, pp. 220–240, LNCS 2590, Springer.
26. Jankun-Kelly, T.J., Ma, K.-L., Gertz, M. (2002): A Model for the Visualization Exploration Process, In *Proceedings of IEEE Visualization 2002*, Robert Moorhead, Markus Gross, Kenneth I. Joy, eds., IEEE Computer Science Press. (58/178)
25. Bremer, J.-M., Gertz, M. (2002): XML/IR: Integrating XML Document and Data Retrieval. In *Fifth International Workshop on the Web and Databases (WebDB 2002)*, Madison, Wisconsin, pp. 1–6. (17/51)
24. Gertz, M., Sattler, K.-U. (2002): Integrating Scientific Data through External, Concept-based Annotations. In *Second International Workshop Data Integration over the Web*. Toronto, Canada, pp. 87–102.
23. Gertz, M., Sattler, K.-U., Gorin, F., Hogarth, M., Stone, J. (2002): Annotating Scientific Images: A Concept-based Approach. In *14th International Conference on Scientific and Statistical Database Management (SSDBM'02)*, IEEE Computer Society, pp. 59–68, 2002. (19/46)
22. Chung, C., Gertz, M., Sundaresan, N. (2002): Reverse Engineering for Web Data: From Visual to Semantic Structures. In *Proceedings of the 18th International Conference on Data Engineering (ICDE 2002)*, IEEE Computer Society Press, pp. 53–63. (54/287)
21. Chung, C., Gertz, M., Sundaresan, N. (2001): Quixote: Building XML Repositories from Topic Specific Web Documents. In *Fourth International Workshop on the Web and Databases (WebDB'2001)*, pp. 103–108. (18/65)
20. Kwong, A., Gertz, M. (2001): Authentic Publication of XML Document Data. In *Proceedings of the 2nd International Conference on Web Information Systems Engineering (WISE)*, IEEE Computer Society, pp. 331–340. (36/132)
19. Devanbu, P., Gertz, M., Kwong, A., Martel, C., Stubblebine, G. (2001): Flexible Authentication of XML Documents. In *Proceedings of the 8th International ACM Conference on Computer and Communications Security (CCS-8)*, ACM, pp. 136–145. (27/153)
18. Rosenstock, B., Gertz, M. (2001): Web-based Scholarship: Annotating the Digital Library (Extended Abstract). In *Proceedings of the 1st ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, ACM, pp. 104–105.
17. Bremer, M. and Gertz, M. (2001): Web Data Indexing through External Semantic-carrying Annotations. In *11th IEEE Int'l Workshop on Research Issues on Data Engineering: Document management for data intensive business and scientific applications (RIDE-DM'2001)*, IEEE Computer Society, pp. 69–76
16. Wolf, A., Heimbinger, D., Carzaniga, A., Knight, J., Devanbu, P., Gertz, M. (2000): Bend, don't break: Using Reconfiguration to Achieve Survivability. *Third Information Survivability Workshop (ISW-2000)*, pp. 51–53

15. Devanbu, P., Gertz, M., Martel, C., Rogaway, P., Stubblebine, S. (2000): Authentic Replication by Untrusted Servers: A Novel Approach to Database Survivability, *Third Information Survivability Workshop (ISW-2000)*, pp. 187-189
14. Devanbu, P., Gertz, M., Martel, S., Stubblebine S. (2000): Authentic Third-party Data Publication. In *14th IFIP 11.3 Working Conference in Database Security (DBSec'00)*, Kluwer Academic Publishers, pp. 101-112.
13. Chung, C., Gertz, M., Levitt, K. (2000), Discovery of Multi-level Security Policies. In *14th IFIP 11.3 Working Conference in Database Security (DBSec'00)*, Kluwer Academic Publishers, pp. 173-184.
12. Hogarth, M., Gertz, M., Gorin, F. (2000): Terminology Query Language: A Sever Interface for Concept Oriented Terminology Systems. In *American Medical Informatics Association (AMIA'00) Annual Symposium On Health Care Informatics*, pp. 349-353
11. Chung, C., Gertz, M., Levitt, K. (1999), DEMIDS: A Misuse Detection System for Database Systems. In *Third Annual IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems*, Kluwer Academic Publishers, pp. 159-178
10. Chung, C., Gertz, M., Levitt, K. (1999): Misuse Detection in Database Systems Through User Profiling. In *Second International Workshop on the Recent Advances in Intrusion Detection (RAID'99)*, West Lafayette, Indiana, USA, September 7-9.
9. Devanbu, P., Gertz, M., Stubblebine, M. (1999): *Security for Automated, Distributed Configuration Management*. In *Proceedings ICSE 99 Workshop on Software Engineering over the Internet*
8. Gertz, M. and Schmitt, I. (1998): Data Integration Techniques based on Data Quality Aspects, In I. Schmitt, C. Tuerker, E. Hildebrandt, M. Hoeding (eds.), *3rd National Workshop on Federated Databases*, Magdeburg, Germany, Shaker Publisher, pp. 1-19
7. Gertz, M. (1998): Managing Data Quality and Integrity in Federated Databases, In S. Jajodia, W. List, G.W. McGregor, L. Strous (eds.), *Integrity and Internal Control in Information Systems, The IFIP TC-11 Working Group 11.5*, Kluwer Academic Publishers, pp. 211-229
6. Gertz, M. and Lipeck, U. (1997): An Extensible Framework for Repairing Constraint Violations, In S. Jajodia, W. List, G.W. McGregor, L. Strous (eds.), *Integrity and Internal Control in Information Systems, The IFIP TC-11 Working Group 11.5*, Chapman & Hall, pp. 89-111
5. Kouramajian, V. and Gertz, M. (1996): A Graphical Query Language for Temporal Databases, *14th International Conference on Object-Oriented and Entity-Relationship Modeling (ER'95)*, Lecture Notes in Computer Science Vol. 1021, Springer, pp. 388-399 (36/120)
4. Gertz, M. and Lipeck, U. (1995): A Diagnostic Approach to Repairing Constraint Violations in Databases, In *Sixth International Workshop on Principles of Diagnosis*, Goslar, Germany
3. Gertz, M. and Lipeck, U. (1995): Temporal Integrity Constraints in Temporal Databases, *Recent Advances in Temporal Databases, Proceedings of the International Workshop on Temporal Databases (TDB'95)*, Workshops in Computing, Springer, pp. 77-92 (18/55)
2. Gertz, M. (1994): Specifying Reactive Integrity Control for Active Databases, *Fourth International Workshop on Research Issues in Data Engineering (RIDE-ADS'94)*, IEEE Computer Society Press, pp. 62-70 (21/59)
1. Gertz, M. and Lipeck, U. (1993): Deriving Integrity Maintaining Triggers from Transition Graphs, In *Ninth International Conference on Data Engineering (ICDE'93)*, IEEE Computer Society Press, pp. 22-29 (72/286)

## Patents

Alonso, O., Gertz, M.: Clustering Search Results using Timeline Constructions (patent pending).

## Tutorials

Gertz, M., Ludäscher, B. (2006): Scientific Data and Workflow Management Tutorial. 10th Intl. Conf. on Extending Database Technology (EDBT), Munich, March 29, 2006.

## Research Grants

PI, “COMET: COast-to-Mountain Environmental Transect”, National Science Foundation, Cyber-infrastructure for Environmental Observatories: Prototype Systems to Address Cross-Cutting Needs (CEO:P), with Bertram Ludäscher, Susan Ustin, Susan Williams and Geoffrey Schladow (Co-PIs), \$2,100,000, October 2006 – September 2009.

Co-PI, “Mining Problem-solving behavior from Open-Source Repositories”, National Science Foundation, with Premkumar Devanbu (PI) and Anand Swaminathan, \$124,975, October 2005 – September 2006.

PI, “ITR: Adaptive Query Processing Architecture for Streaming Geospatial Image Data”, National Science Foundation, Information Technology Research (ITR) Program, with Susan Ustin and Quinn Hart (Co-PIs), \$800,000, October 2003 – September 2007.

PI, “Security Analysis and Re-engineering of Databases”, National Science Foundation, Data and Application Security Program, with Karl Levitt (Co-PI), \$240,000, July 2003 – May 2006 (extended to May 2007).

Co-PI, “Metadata Driven Visualization Interface Technology for Scientific Data Exploration”, National Science Foundation, Advanced Computational Research Program, with Kwan-Liu Ma (PI), \$265,000, October 2002 – September 2005.

Co-PI, “Informatics of the Human and Monkey Brain”, with Edward Jones (PI), Human Brain Project, NIH, \$6,905,743, October 2001 – September 2005

Co-PI, “Scalable and Secure Information Replication”, National Science Foundation, Information Technology Research (NSF-ITR), with P. Devanbu (PI), C. Martel, P. Rogaway (Co-PIs), \$786,465, September 15, 2000 – August 31, 2003

PI, Multi-Campus Award under California Environmental Resources Evaluation System – CERES, \$36,234, July 1, 2000 – June 30, 2001

Co-PI, “Multiresolution and topology-based visualization of large scientific data sets in parallel and distributed computing environments”, National Science Foundation, Large Scientific and Software Data Visualization (LSSDVS) Program, with B. Hamann (PI), V.R. Algazi, K. Joy, K. Ma, N. Max, (Co-PIs), \$769,629, April 1, 2000 – March 31, 2003

Co-PI, “Using On-line course delivery to reduce costs in large undergraduate general education courses”, with H. Matthews (PI), R. Falk, B. Sommer, V. Sutter (Co-PIs), The Andrew W. Mellon Foundation, \$500,000, July 1, 2000 – December 31, 2001

Co-PI, “Assuring information stability through secure proactive posturing and reactive repair”, DARPA-ISO subcontract through University of Colorado, with A. Wolf (PI), D. Heimbinger, K. Anderson, P. Devanbu, K. Levitt, \$245,000, July 1, 2000 – December 31, 2002

Co-PI, “Campuswide Information System for On-line courses and course components”, with H. Matthews (PI), R. Falk, B. Summer (Co-PIs), University of California, Instructional Use of Computing, \$77,000, July 1999 – June 2000

PI, “Multi-community cyber defense”, DARPA subcontract through Boeing Company, with K. Levitt, P. Devanbu, \$130,000, August 1999 – July 2001

Donation from Intel Corporation, with M. Bishop, K. Levitt, \$75,000, December 1999

Startup Fund, University of California, College of Engineering, \$39,066, November 1997

## Recent Presentations

Confidentiality in the Context of Spatially Explicit Data, NSF Workshop on Confidential Data Collection for Innovation Analysis in Organizations, Redmond, WA, September 2009.

Moving Objects: From Moving Regions to Similarity of Object Trajectories, Heidelberg Collaboratory for Image Processing (HCI), June 2006.

Verarbeitung und Analyse wissenschaftlicher Daten: Ansätze und Herausforderungen, Fakultät für Informatik, Karlsruhe Institut of Technology, May 2009.

Ich geh’ mal eben ins Netz. Vortrag an der Kinderuni 2009, Heidelberg.

A Data and Query Model for Streaming Geospatial Image Data, Query Languages and Query Processing (QLQP-2006), with EDBT 2006.

GeoStreams: Managing Remotely-sensed Streaming Geospatial Image Data, University of Hannover, Germany, November 2004.

GeoStreams: Managing Remotely-sensed Streaming Geospatial Image Data, San Diego Supercomputer Center (SDSC), August 2004.

Opportunities and Challenges in Tracing Security Breaches (Panel Discussion), 5th IFIP TC 11 WG11.5 Working Conference on Integrity and Internal Control in Information Systems, Bonn, November 11-12, 2002.

Integrating Scientific Data Through Concept-Based Annotations (Digital Microscopic Brain Atlases and Data Integration), Human Brain Project/Neuroinformatics Annual Spring Meeting, Washington, May 6-7, 2002

Conceptualized Annotations of Web Data in Collaborative Research Environment, Invited talk, Oregon Graduate Institute, Department of Computer Science, January 14, 2002

Authentic Publication of XML Document Data, 2nd International Conference on Web Information Systems Engineering, December 6, 2001

Web Data Indexing through External Semantic-carrying Annotations, Conference presentation, RIDE 2001, April 2, 2001

Towards the Semantic Web – Enriching Web Data by Semantic-Carrying Metadata, Invited talk, IBM Almaden, September 29, 2000

Authentic Third-party Data Publication, 14th IFIP 11.3 Working Conference in Database Security, Amsterdam August 21-23, 2000

Achieving Semantic Interoperability through Controlled Annotations, Invited talk, US-Korea Joint Workshop on Digital Libraries, San Diego Supercomputer Center, August 11-12, 2000

Folk Literature of the Sephardic Jews: A Multi-Tiered Extensible Digital Archive, with Bruce Rosenstock, Digital Library Seminar, UC Berkeley, May 1, 2000

Conceptualizing the Web Information Space, Invited talk, Computer Science Department, Sacramento State University, March 1, 2000

## Committee Activities

- PC Chair, 22rd International Conference on Scientific and Statistical Database Management (SSDBM 2010), June 30-July 2, Heidelberg, Germany.

- PC Member, 2nd SIGSPATIAL ACM GIS International Workshop on Security and Privacy in GIS and LBS (Springl 2009), November 3, Seattle, Washington.
- PC Member, 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS 2009), November 4–6 2009, Seattle, Washington.
- PC Member, ACM 18th Conference on Information and Knowledge Management (CIKM09), November 2-6, 2009, Hong Kong.
- PC member, 7th International Workshop on Quality in Databases (QDB09), in conjunction with VLDB'09, August 24th, 2009, Lyon, France.
- PC member, 14th International Conference on Data Quality (ICDQ09), November 7-8, Potsdam, Germany.
- PC Member, 18th International World Wide Web Conference (WWW 2009), April 20 - April 24, 2009, Madrid, Spain.
- PC Member, 25th International Conference on Data Engineering (ICDE 2009) March 29 - April 4, 2009, Shanghai, China.
- 11th International Conference on Extending Database Technology (EDBT 2009), March 23-26 2009, Saint-Petersburg, Russia.
- PC Member, ACM 17th Conference on Information and Knowledge Management (CIKM 2008), October 26-30, Napa Valley, California.
- PC Member, 16th ACM International Symposium on Advances in Geographic Information Systems (ACM GIS 2008), November 5-7, California.
- PC Member, Workshop on Quality in Databases (QDB'08), with VLDB 2008, August 25th, Auckland, New Zealand
- PC Member, 11th International Workshop on the Web and Databases (WebDB 2008), co-located with SIGMOD/PODS 2008, Vancouver, Canada.
- PC Member, Exploiting Semantic Annotations in Information Retrieval, ECIR 2008 Workshop, April 2008, Glasgow, Scotland.
- PC Member, 8th International Conference on Web Engineering (ICWE08), July 2008, Yorktown Heights, New York, USA.
- PC Member, 23rd International Information Security Conference (SEC 2008), September 8-10, 2008, Milan, Italy.
- PC Member, Semantic Scientific Knowledge Integration, AAAI/SSS Workshop, March 26-28, 2008, Stanford U., CA
- PC Member, 20th International Conference on Scientific and Statistical Database Management (SSDBM'08), July 9-11, 2008, Hong Kong, China.
- PC Member, 11th International Conference on Extending Database Technology (EDBT 2008), March 25-30, 2008, Nantes, France.
- PC Member, 5th International Workshop on Quality in Databases (QDB), with VLDB 2007, Vienna, September 24, 2007.
- PC Member, Second International Symposium on Information Security (IS'07), Vilamoura, Algarve, Portugal, Nov 25-30, 2007.
- PC Member, Seventh International Conference on Web Engineering (ICWE07), Como, Italy, July 2007.
- PC Member, First International Workshop on Security Technologies for Next Generation Collaborative Business Applications (SECOBAP'07), held in conjunction with ICDE 2007, Istanbul, Turkey, April 2007,

- PC Member, ACM 15th Conference on Information and Knowledge Management (CIKM2006), Arlington, VA, November 2006.
- PC Member, First International Workshop on Information Security (IS'06), Montpellier, France, Oct 29–Nov 3, 2006.
- PC Member, First Int'l VLDB Workshop on Clean Databases (CleanDB'06), September 11, 2006, Seoul, Korea (Co-located with VLDB 2006).
- PC Member, International Conference on Web Engineering (ICWE'06), Palo Alto, California.
- PC Member, 15th International World Wide Web Conference (WWW'06), E\*Applications Track, 2006.
- Program Co-Chair, 10th International Conference on Information Quality (ICIQ 2005), Boston, MA, November 2005.
- PC Member, International Workshop on Quality of Information Systems (QoIS 2005)
- PC Member, 2nd International Workshop on Information Quality in Information Systems (IQIS 2005).
- PC Member, 17th International Conference on Scientific and Statistical Database Management (SSDBM 2005).
- PC Member, 6th International Conference on Web-Age Information Management (WAIM 2005).
- PC Member, 7th IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems
- PC Member, International Workshop on Information Quality in Information Systems 2004 (IQIS 2004)
- PC Member, 3rd XML and Information Retrieval Workshop (in conjunction with SIGIR 2004)
- Organizer of the Dagstuhl Workshop “Data Quality on the Web”, Gunter Saake, Kai-Uwe Sattler, Tamer Özsu (Co-organizers), to be held August 24-29, 2003, Dagstuhl, Germany. (see <http://www.dagstuhl.de/03362/>)
- Program Chair of the 5th International IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems, Bonn, Germany, November 11-12, 2002
- Program Co-Chair of the 4th International IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems, Brussels, Belgium, November 15-16, 2001.
- IFIP WG 11.5 Working Conference on Integrity and Control in Information Systems, PC Member in 1998, 1999, 2003.
- PC Member, 8th Int. Workshop on Foundations of Models and Languages for Data and Objects, “Transactions and Database Dynamics”, 1999.
- PC Member, International Conference on Cooperative Information Systems (CoopIS), 1998.

### **Reviewing and Committee Activities – Journals, Conference Proceedings etc.**

ACM Transactions on Information Systems  
 ACM Transactions on Database Systems  
 Information Systems (Elsevier)  
 World Wide Web Journal (Kluwer)  
 IEEE Internet Computing  
 IEEE Transactions on Knowledge and Data Engineering  
 Theory and Practice of Object Systems (TAPOS)  
 The Computer Journal, Oxford University Press

Computers and Electronics in Agriculture  
The VLDB Journal

### **Reviewing Activities – Funding Agencies**

Review Panel German Research Foundation (DFG), 2006  
NSF CNS Panel, NSF CI Panel, 2006  
NST ITR Site Review, 2005  
NSF CISE Panel, 2004  
South Carolina Research Initiative, South Carolina Commission on Higher Education, 1999

### **Other Professional Activities – Industry**

Consultant and Technical Advisor, IPLocks Inc., San Jose, CA, March 2002–present.

### **Professional Memberships**

Association for Computing Machinery (ACM), ACM SIGMOD  
IEEE Computer Society  
Gesellschaft für Informatik (GI)  
Co-Chair IFIP TC-11 Working Group 11.5 Information Systems Integrity and Control  
IFIP TC-11 Working Group 11.3 (Database Security)

### **Advising and Supervision Activities**

(Graduated 9 Ph.D. and 13 M.S. students)

Byrd, M. (October 2006–present): Predictive Clustering of Moving Objects, Ph.D. candidate, University of California, Davis  
Franke, C. (October 2006–present): Adaptive Data Mining Techniques for Streaming Data, Ph.D. candidate, University of California, Davis  
Yu, W. (October 2006–present): Similarity Measures and Clustering of Moving Region Trajectories, Ph.D. candidate, University of California, Davis  
Fisher-Ogden, P. (October 2007–September 2008): DEF-CAT: DBLP Expert Finder Utilizing Categories and Topics, M.S. thesis, University of California, Davis  
Alonso, O. (October 2004–August 2008): Temporal Information Retrieval, Ph.D. thesis, University of California, Davis  
Yang, H. (October 2005–August 2007): Integration of Modifications of Geospatial Data in Collaborative Environments, M.S. thesis, University of California, Davis  
Rueda, C. (October 2003–October 2007): Geospatial Image Stream Processing: Models, Techniques, and Applications in Remote Sensing Change Detection, Ph.D. thesis, University of California, Davis  
Zhang, J. (October 2003–March 2007): Spatio-Temporal Aggregates over Streaming Geospatial Image Data, Ph.D. thesis, University of California, Davis  
D'Sa, R. (October 2005–January 2007): A Framework for Managing Spatial Data Annotations on Web Maps, M.S. thesis, University of California, Davis  
Hart, Q. (August 2003–November 2006): Online Geospatial Image Databases, Ph.D. thesis, University of California, Davis  
Singhal, S. (July 2002–August 2006): Operator Scheduling in a Distributed Stream Processing System for Geospatial Image Data, Ph.D. thesis, University of California, Davis  
Chopra, S. (October 2004–June 2006): Context Driven Access Control for Relational Databases, M.S. thesis, University of California, Davis

- Gandhi, M. (March 2001–March 2005): Data Profiling and the Access Path Model: A Step Toward Addressing Insider Misuse in Database Systems, Ph.D. thesis, University of California, Davis
- Kwong, A. (March 2001–October 2004): Schema-based Dependencies for XML: Theory and Applications, Ph.D. thesis, University of California, Davis
- Ho, R. (July 2002–September 2004): Management of Audit Data for Relational Databases, M.S. thesis, University of California, Davis
- Kong, D. (2004): Supporting Access Control for XML Documents in Relational Database Systems, M.S. thesis, University of California, Davis
- Kang, C. (2004): On the Quality of Content-Descriptive Data Annotations, M.S. thesis, University of California, Davis
- Bremer, J.-M. (2003): Next-Generation Information Retrieval: Integrating Document and Data Retrieval Based on XML, Ph.D. thesis, University of California, Davis, March 2001–September 2003
- Falke, S. (2003): Querying and Managing Controlled Data Annotations Through Spatial Metadata, Diploma thesis, co-advisor, University of Hannover, Germany, November 2002–May 2003
- Yu, W. (2002): An Information Integration and Retrieval System for Geospatial Documents, M.S. Thesis, University of California, Davis, October 2001–November 2002
- Lim, D. (2001): Controlled Data Annotations over Heterogeneous Web Resources, M.S. Thesis, University of California, Davis, March 2001–December 2001
- Louie, H. (2001): A Framework for Trust Management in Mediated Query Systems, M.S. Thesis, University of California, Davis, February 2000 – January 2001
- Cheng, R. (2000) SkyWalker - A Customizable Web Crawler, M.S. Thesis, University of California, Davis, January 2000 – June 2000
- Oakasha, H. (2000): Consistency Management for Object Databases, Ph.D. Thesis, Fakultät für Informatik, Universität Magdeburg, Germany, October 2000, dissertation examiner
- Türker, C. (1999): Semantic Integrity Constraints in Federated Database Schemata, Ph.D. Thesis, Fakultät für Informatik, Universität Magdeburg, Germany, October 1999, dissertation examiner
- Tran, C. (1999): Metadata Repositories for a Multidatabase System, M.S. Thesis, University of California, Davis, June 1998 – June 1999
- Chung, C. (1998): Data Extraction and Integration of Semistructured Documents, Ph.D. Thesis, University of California, Davis, September 1998 – 2000

## **Recent University, College, and Departmental Services**

At the University of California at Davis

- Chair, Faculty Recruiting Committee in Computer Science, AY06-2008.
- Member, Faculty Recruiting Committee “Global Change Informatics Search” (College of Agricultural and Environmental Sciences), AY07-2008.
- Member, Faculty Recruiting Committee in Cosmology, AY06-08.
- Chair, Faculty Representative Committee in Computer Science, AY05–October 2008.
- Member, Research and Outreach Committee in Computer Science, AY06–October 2008.
- Member, Graduate Group in Computer Science Executive Committee, AY03–October 2008.
- Chair, Graduate Admissions Committee in Computer Science, AY02–06.
- Member, College Awards Committee, AY05.
- Member, Faculty Recruiting Committee Cosmology/Physics, AY05.
- Member, Graduate Group in Computer Science Executive Committee, AY02–present.
- Member, University Advisory Committee on Faculty Mentoring, AY03.
- Member, CalSpace Advisory Committee, AY03.