

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, Heidelberg University, Germany, October 2008–present

Acting Director, Institute of Computer Science, Heidelberg University, Germany, October 2009–present

Member, Interdisciplinary Center for Scientific Computing (IWR), Heidelberg University, Germany, October 2009–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

- Management and analysis of spatial and spatio-temporal data
- Processing and querying (streaming) geospatial data
- Data mining
- Scientific data management and eScience

Information Retrieval and XML Data Management

- Text mining
- Temporal and spatio-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 Heidelberg University:

- Spatial Databases (WS 2008/09, WS 2010/11), “Databases I” (SS 2009, SS 2010, SS 2011, SS 2012), “Einführung in die Praktische Informatik (Informatik I)” (WS 2009/10), “Databases II” (WS 2009/10, SS 2011), “Knowledge Discovery in Databases” (SS 2010, WS 2011/12), Seminars on Scientific Data Management, Data Mining, Text Mining, Outlier Detection in Large Datasets, Architectures of Data Management Systems, Spatial and Temporal Logics, Graph Management and Mining, Scientific Computing, Recommender Systems

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)

Steering Committees

International Conference on Scientific and Statistical Database Management (SSDBM), since 2010.

(Edited) Books and Book Chapters

9. Gertz, M., Ludäscher, B. (2010): Editors, *Proceedings of the 22nd International Conference on Scientific and Statistical Database Management (SSDBM 2010)*, Heidelberg, Germany, June 30 - July 2, 2010. Lecture Notes in Computer Science 6187, Springer 2010, ISBN 978-3-642-13817-1.
8. Gertz, M., Rueda, C., Zhang, J. (2009): Interoperability and Data Integration in the Geosciences. 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

20. Gertz, M., Müller, W. (2012): Editorial “Schwerpunktthema: Scientific Data Management”, to appear in *Datenbank Spektrum* Nov. 2012.
19. Strötgen, J., Gertz, M. (2012): Multilingual and Cross-domain Temporal Tagging, to appear in *Language Resources and Evaluation*, Springer.
18. Junghans, C., Karnstedt, M., Gertz, M. (2011): Quality-Driven Resource-Adaptive Data Stream Mining. In *SIGKDD Explorations*, Volume 13, Issue 1, 78–88.
17. Gertz, M. (2010): Der Lehrstuhl für Datenbanksysteme am Institut für Informatik der Universität Heidelberg. In *Datenbank-Spektrum*, Volume 10, Number 3, 163–164.
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. In *Computer Science - Research and Development* 24(3):153–170, 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 Workshops¹

82. Sengstock, C., Gertz, M., Canh, T.V. (2012): Spatial Interestingness Measures for Co-location Pattern Mining. To appear in: International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM-12), in conjunction with IEEE ICDM.
81. Anh, L.V.Q, Gertz, M. (2012): Mining Spatio-temporal Patterns in the Presence of Concept Hierarchies. To appear in: International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM-12), in conjunction with IEEE ICDM.
80. Sengstock, C., Gertz, M. (2012): Latent Geographic Feature Extraction from Social Media. To appear in: Proceedings of the 20th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, SIGSPATIAL 2012.
79. Keller, B., Strötgen, J., Gertz, M. (2012): Event-centric Document Similarity for Biomedical Literatur. In 5th International Symposium on Semantic Mining in Biomedicine, SMBM 2012.

¹Some 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)

78. Canh, T.V., Gertz, M. (2012): A Constraint Neighborhood based Approach for Co-location Pattern Mining. In Fourth International Conference on Knowledge and Systems Engineering, KSE 2012, IEEE, 128–135.
77. Strötgen, J., Gertz, M. (2012): Event-centric Search and Exploration in Document Collection. In Proceedings of the 12th ACM/IEEE-CS Joint Conference on Digital Libraries, JCDL '12, ACM, 223–232.
76. Strötgen, S., Alonso, O., Gertz, M. (2012): Identification of Top Relevant Temporal Expressions in Documents. In 2nd Temporal Web Analytics Workshop, TempWeb '12 (with WWW 2012), ACM, 33–40.
75. Sengstock, C., Gertz, M. (2012): Latent Contextual Indexing of Annotated Documents. In 21th International Conference on World Wide Web, WWW 2012, ACM, 593–594.
74. Strötgen, J., and Gertz, M. (2012): Temporal Tagging on Different Domains: Challenges, Strategies, and Gold Standards. In the 8th International Conference on Language Resources and Evaluation, LREC 2012.
73. Strötgen, J., Alonso, O., and Gertz, M. (2012): Retro:Time-based Exploration of Product Reviews. In 34th European Conference on Information Retrieval, ECIR 2012, LNCS 7224, 581–582.
72. Sengstock, C., Gertz, M. (2011): Exploration and Comparison of Geographic Information Sources using Distance Statistics. In 19th ACM SIGSPATIAL International Symposium on Advances in Geographic Information Systems, ACM-GIS 2011, 329–338
71. Alonso, O., Gertz, M., Baeza-Yates, R. (2011): Enhancing Document Snippets by Using Temporal Information. In SPIRE 2011, LNCS 7024, 26–31.
70. Strötgen, J., Gertz, M. (2011): WikiWarsDE: A German Corpus of Narratives Annotated with Temporal Expressions. In GSCL 2011: Conference of the German Society for Computational Linguistics and Language Technology, Hamburg, Germany, September 28-30.
69. Strötgen, J., Gertz, M., Junghans, C. (2011): An Event-centric Model for Multilingual Document Similarity. In SIGIR 2011: The 34th International ACM SIGIR Conference on Research and Development in Information Retrieval, ACM, 953–962.
68. Alonso, O., Strötgen, J., Baeza-Yates, R., Gertz, M. (2011): Temporal Information Retrieval: Challenges and Opportunities. In 1st International Temporal Web Analytics Workshop (TWAW), together with WWW 2011.
67. Sengstock, C., Gertz, M. (2011): CONQUER: A System for Efficient Context-aware Query Suggestions (Demo Paper). In 20th International World Wide Web Conference (WWW 2011), ACM, 265–268.
66. Häsner, M., Junghans, C., Sengstock, C., Gertz, M. (2011): Online Hot Spot Prediction in Road Networks. In 14. BTW-Tagung der Gesellschaft für Informatik (GI), LNI 180, 187–206.
65. Junghans, C., Gertz, M. (2010): Modeling and Prediction of Moving Region Trajectories. In International Workshop on GeoStreaming (IWGS 2010), together with SIGSPATIAL 2010.
64. Alonso, O., Gertz, M., Baeza-Yates, R. (2010): Temporal Analysis of Document Collections: Framework and Applications. In 17th International Symposium of String Processing and Information Retrieval (SPIRE) , LNCS 6393, 290–296.

63. Sengstock, C., Gertz, M. (2010): Exploring Volunteered Geographic Information Using Scale-Dependent Frequent Pattern Mining (Abstract). In 6th International Conference on Geographic Information Science (GIScience).
62. Strötgen, J., Gertz, M. (2010): TimeTrails: A System for Exploring Spatio-Temporal Information in Documents (demo paper). In 36th International Conference on Very Large Data Bases (VLDB 2010), Singapore, 1569–1572.
61. Strötgen, J., Gertz, M. (2010): HeidelTime: High Quality Rule-based Extraction and Normalization of Temporal Expressions. In SemEval-2010: 5th International Workshop on Semantic Evaluations (at ACL 2010), Uppsala, Sweden, 2010.
60. Sengstock, C., Gertz, M. (2010): Anwendung von Frequent Itemset Mining auf nutzergenerierte Geodaten. In Geoinformatik 2010.
59. Strötgen, J., Gertz, M., Popov, P. (2010): Extraction and Exploration of Spatio-Temporal Information in Documents. In Proceedings of the 6th Workshop on Geographic Information Retrieval (GIR'10), Zurich, Switzerland, 2010.
58. Zhang, J., Gertz, M., Gruenwald, L. (2009): Efficiently Managing Large-Scale Raster Species Distribution Data in PostgreSQL. In 17 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, ACM, 316–325. (38/185)
57. Alonso, O., Gertz, M., Baeza-Yates, R. (2009): Clustering and Exploring Search Results using Timeline Constructions. In 18th ACM Conference on Information and Knowledge Management (CIKM'09), 97–106. (123/847)
56. Franke, C., Gertz, M. (2009): ORDEN: Outlier Region Detection and Exploration in Sensor Networks (demo paper). In 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. In Liu, Ling; Özsu, M. Tamer (eds.), Encyclopedia of Database Systems, Springer, 3098–3103.
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)
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 (JCDDL)*, 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 Reproduction 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 Server 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)

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

Co-PI, “PhD graduate school *CrowdAnalyser: Spatio-temporal Analysis of User-generated Content*”, with Alexander Zipf (PI), Bernd Höfle, Björn Ommer, October 2012–September 2015.

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 Republication”, 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

Scientific Data Mining: A Graph-based Approach, Evaluierungsworkshop des Graduiertenkollegs METRIK, Hotel Döllnsee-Schorfheide, April 2011.

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 2009.

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

- 2013: MDM 2013 PC Co-Chair, BTW Demo Sessio PC member
- 2012: SSDBM, ICDE Panel Co-chair, ICIQ, SIGSPATIAL, IWGS, ICIQ
- 2011: Panel-Co Chair for ICDE 2012; PC member of SIGSPATIAL, ICIQ, QDB, CIKM, SSDBM, IWGS.
- 2010: PC Chair of SSDBM, PC member of SIGSPATIAL, ICIQ PC, 1st International Workshop on Workflow Approaches to New Data-Centric Science, CIKM
- 2009: PC member of SIGSPATIAL, SPRINGL (with SIGSPATIAL), CIKM, QDB, ICDQ, WWW, ICDE, EDBT
- 2008: PC member of CIKM, ACM GIS, QDB, WebDB, ECIR Workshop, ICWE, SEC, SSDBM, EDBT
- 2007: QDB, IS, ICEW, SECOBAP
- 2006: Co-Chair ICIQ, PC member of CIKM, IS, CleanDB, ICWE
- 2005: PC member of QoIS, IQIS, SSDBM, WAIM, IICIS
- 2004: PC member of IQIS, 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), held August 24-29, 2003, Dagstuhl, Germany. (see <http://www.dagstuhl.de/03362/>)
- 2002: 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
- 2001: 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.

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

AiF/DFG, NSF Career, Academy of Finland Panel, 2011
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 2002–2008.

Professional Memberships

Association for Computing Machinery (ACM), ACM SIGMOD, SIGSPATIAL
IEEE Computer Society (until 2012)
Gesellschaft für Informatik (GI)

Advising and Supervision Activities

(Graduated 9 PhD, 19 MSc/Diploma, and 20 BSc students)

Klein, A.: The CSGridFile for Managing and Querying Point Data in Column Stores, MSc Thesis, Heidelberg University, August 2012.
Neusinger, M: Erkennung von Sternstrmen mit Hilfe moderner Clusteringverfahren, Diploma Thesis Physics/Computer Science, Heidelberg University, August 2012.
Fay, A.: Correlation and Exploration of Events, MSc Thesis, Heidelberg University, February 2012.
Wilhelm, A.: Spezifikation und Suche komplexer Routen in Strassennetzwerken, Diploma Thesis, Mathematics/Computer Science, Heidelberg University, February 2012.
Jarke, S. (April 2011–November 2011): Effiziente Suche von Substrukturen in grossen geometrischen Graphen, MSc Thesis, Heidelberg University, Heidelberg
Slama, B. (October 2010–March 2011): Dynamische Erkennung von Ausreißern in Straßennetzwerken, MSc Thesis, Heidelberg University, Heidelberg
Häsner, M. (April 2010–October 2010): Bestimmung und Überwachung von Hot Spots in Strassen-netzwerke, MSc Thesis, Heidelberg University, Heidelberg
Franke, C. (October 2006–November 2009): Adaptive Data Mining Techniques for Streaming Data, Ph.D. thesis, 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.