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Born April 19, 1955; U.S. Citizen; Married; 2 children

Education

Ph.D., Carnegie Mellon University, Pittsburgh, PA (Computer Science), 1982
   Thesis Chairman: W. A. Wulf

M.S., Carnegie Mellon University (Computer Science), 1978

B.A., Carleton College, Northfield, MN (Physics), Magna Cum Laude, 1977

Positions Held

University of Arizona, Department of Computer Science
   August 1996 to present. Professor.
   August 1996 to present. Professor.
   August 1989 to July 1996. Associate Professor.

University of North Carolina at Chapel Hill, Department of Computer Science
   July 1989 to August 1989. Associate Professor.
   July 1982 to July 1989. Assistant Professor.

Research Interests

Databases: temporal databases, query language design, query optimization and evaluation, storage structures, database design.
Ergalics (the science of computing).

Awards and Fellowships

Galileo Circle Fellow, College of Science, University of Arizona, 2015.
2013–2014 Faculty Research Award, Department of Computer Science, April 2014.
2014 Catapult Award, Tech Launch Arizona, University of Arizona, March 2014.
2012–2013 Faculty Impact Award, Department of Computer Science, April 2013.
Outstanding Advising Award, Honors College, April 2011.
Outstanding Faculty Award, Honors College, awarded April 2009.
2005–2006 Outstanding Service Award, Department of Computer Science, Awarded May 2006 ("for leadership and vision in guiding the growth of the Department strategic plan, as well as for outstanding service to the profession")
2004 Outstanding Contribution to ACM Award, Awarded June 2005 ("For exceptional leadership in broadening the vision of the ACM Digital Library into a portal to computer science literature, and for service as an outstanding leader of the ACM SIGMOD community, of the Publications Board, and of the SIG Board.")

ACM SIGMOD Contributions Award, 2002 (for "his service as SIGMOD chair from 1997-2001. He took the lead to create the ACM/SIGMOD Digital Library, and personally built the necessary bridges to sister societies, in order to complete the project. Through the example of his leadership, the number of SIGMOD volunteers more than tripled, and SIGMOD membership itself began a significant upward trend.")

Fellow of the Association of Computing Machinery, May 1999 ("For originating, providing leadership to, and for fundamental contributions to the research area of temporal databases, and for outstanding, wide-ranging service to the database community.")

Best paper award, IEEE International Conference on Data Engineering, April 1993.

UNC-CH Foundation Junior Faculty Development Award, 1985.

IBM Faculty Development Award, 1984.

National Science Foundation Fellowship, 1977–1980.

Books

Snodgrass, Richard T., **Developing Time-Oriented Database Applications in SQL**, Morgan Kaufmann Publishers, Inc., San Francisco, CA, July 1999, 504+xxiv pages.

Zaniolo, Carlo, Stefano Ceri, Christos Faloutsos, Richard T. Snodgrass, V. S. Subrahmanian, and Ricardo Zicari, **Advanced Database Systems**, Morgan Kaufmann Publishers, Inc., San Francisco, CA, 1997, 574+xvii pages.

Snodgrass, Richard T., editor, **The TSQL2 Temporal Query Language**, Kluwer Academic Publishers, 1995, 674+xxiv pages. The TSQL2 Language Design Committee consisted of Richard Snodgrass (chair), Ilsoo Ahn, Gad Ariav, Don Batory, James Clifford, Curtis E. Dyreson, Ramez Elmasri, Fabio Grandi, Christian S. Jensen, Wolfgang Käfer, Nick Kline, Krishna Kulkarni, T. Y. Cliff Leung, Nikos Lorentzos, John F. Roddick, Arie Segev, Michael D. Soo and Suryanarayana M. Sripada.

Tansel, Abdullah, James Clifford, Shashi Gadia, Sushil Jajodia, Arie Segev, and Richard T. Snodgrass, editors, **Temporal Databases: Theory, Design, and Implementation**, Database Systems and Applications Series, Benjamin/Cummings Pub. Co., Redwood City, CA, March 1993, 633+xx pages.

Snodgrass, Richard T., **The Interface Description Language: Definition and Use**, with contributions from Karen P. Shannon, Jerry S. Kickenson, Michael A. Shapiro, Dean D. Throop, William B. Warren, David A. Lamb, John R. Nestor, and William A. Wulf, Principles of Computer Science Series, Computer Science Press, Rockville, MD, 1989, 615+xv pages.

Kim, Won, Dina Bitton, Roger King, Meral Özsoyoğlu, and Richard T. Snodgrass, editors, **Database Engineering**, Vol. 7, IEEE Computer Science Press, 1989, 210+vi pages. This is a collection of four issues of the Data Engineering bulletin published by the IEEE Technical Committee on Data Engineering.

Book Chapters

Jensen, Christian S. and Richard T. Snodgrass (editors), "Temporal Database Entries for the Springer Encyclopedia of Database Systems," TimeCenter TR-90, May 2008, 337+v pages. (This technical report consists of 81 entries for the **Encyclopedia of Database Systems**, Ling Liu and M. Tamer Özsu, Editors-in-chief, Springer, 2009.)

Jensen, Christian S. and Richard T. Snodgrass, "Temporally Enhanced Database Design," in **Object-Oriented Data Modeling**, Michael P. Papazoglou, Stefano Spaccapietra, and Z. Tari (eds), MIT Press, pp. 163–194, 2000.

Bettini, Claudio, Curtis E. Dyreson, William S. Evans, Richard T. Snodgrass and X. Sean Wang, "A Glossary of Time Granularity Concepts," in **Temporal Databases: Research and Practice**, Ophir Etzion, Sushil Jajodia, and Suri Sripada (eds.), LNCS 1399, Springer, pp. 406–413, 1998.

Jensen, Christian S. and Curtis E. Dyreson (eds), Michael Böhlen, James Clifford, Ramez Elmasri, Shashi K. Gadia, Fabio Grandi, Pat Hayes, Sushil Jajodia, Wolfgang Käfer, R. Nick Kline, Nikos Lorentzos, Yannis Mitsopoulos, Angelo Montanari, D. Nonen, E. Peressi, Barbara Pernici, John F. Roddick, N. L. Sarda, Maria-Rita Scalas, Arie Segev, Richard T. Snodgrass, Michael D. Soo, Abduallah Tansel, Roberto Tiberio and Gio Wiederhold, "A Consensus Glossary of Temporal Database Concepts—February 1998

Version," in **Temporal Databases: Research and Practice**, Ophir Etzion, Sushil Jajodia, and Suri Sripada (eds.), LNCS 1399, Springer-Verlag, pp. 367–405, 1998.

Snodgrass, Richard T., Michael H. Böhlen, Christian S. Jensen, and Andreas Steiner, "Transitioning Temporal Support in TSQL2 to SQL3," in **Temporal Databases: Research and Practice**, O. Etzion, Sushil Jajodia, and S. Sripada (eds.), LNCS 1399, Springer, pp. 150–194, 1998.

Dyreson, Curtis E. and Richard T. Snodgrass, "The TSQL2 Baseline Clock," in **Encyclopedia of Microcomputers**, Vol. 19, A. Kent and J. G. Williams (eds), pp. 49-68, 1996.

Snodgrass, Richard T., "Temporal Object Oriented Databases: A Critical Comparison," chapter 19 in **Modern Database Systems: The Object Model, Interoperability and Beyond**, W. Kim, editor, Addison-Wesley/ACM Press, 1995, pp. 386-408.

Snodgrass, Richard T., author or co-author of 37 chapters, 595 pages, in **The TSQL2 Temporal Query Language**, Kluwer Academic Publishers, 1995.

Snodgrass, Richard T., "An Overview of TQuel," Chapter 6, **Temporal Databases: Theory, Design, and Implementation**, Tansel, Abhullah, James Clifford, Shashi K. Gadia, Sushil Jajodia, Arie Segev, and Richard T. Snodgrass, editors, Benjamin/Cummings Pub. Co., 1993, pp. 141-182.

Refereed Journal Articles

Khatri, Vijay, Sudah Ram, Richard T. Snodgrass, and P. Terenziani, "Capturing Telic-Atelic Temporal Data Semantics: Generalizing Conventional Conceptual Models," IEEE *Transactions on Knowledge and Data Engineering* 26(3):528–548, March 2014.

Luca Anselma, Paolo Terenziani, and Richard T. Snodgrass, "Valid-Time Indeterminacy in Temporal Relational Databases: Semantics and Representations", *IEEE Transactions on Knowledge and Data Engineering*, 24(12):2880–2994, December 2013.

Pavlou, Kyriacos and Richard T. Snodgrass, "Generalizing Database Forensics," *ACM TODS*, volume 38, 42+7 pages, 2013.

Thomas, Stephen, Richard T. Snodgrass, and Rui Zhang, "Benchmark Frameworks and τBench," *Software— Practice and Experience*, Wiley Interscience, 29 pages, April, 2013.

Anselma, Luca, Paolo Terenziani, and Richard T. Snodgrass, "Valid-Time Indeterminacy in Temporal Relational Databases: Semantics and Representations", *IEEE Transactions on Knowledge and Data Engineering*, 24(12):2880–2994, December 2013.

Currim, Faiz, Sabah Currim, Curtis E. Dyreson, R.T. Snodgrass, S. Thomas and R. Zhang, "Adding Temporal Constraints to XML Schema," *IEEE Transactions on Knowledge and Data Engineering* 24(8):1361–1377, 2012.

Morrison, Clayton and Richard T. Snodgrass, "Computer Science Can Use More Science," *Communications of the ACM* 54(6):36–38, June 2011.

Currim, Faiz, Sabah Currim, Curtis Dyreson, Richard Snodgrass, Stephen Thomas and Rui Zhang, "Adding Temporal Constraints to XML Schema," *IEEE Transactions on Knowledge and Data Engineering* 22(4): 590–601, April 2010.

Pavlou, Kyri E. and R. T. Snodgrass, "The Tiled Bitmap Forensic Analysis Algorithm," *IEEE Transactions on Knowledge and Data Engineering* 22(4):590–601, April 2010.

Pavlou, Kyri and Richard T. Snodgrass, "Forensic Analysis of Database Tampering," *ACM Transactions on Database Systems* 33(4), December, 2008, 45+26 pages.

Dyreson, Curtis E.., Richard T. Snodgrass, Faiz Currim, Sabah Currim, and Shailesh Joshi, "Validating Quicksand: Schema Versioning in τXSchema," *Data Knowledge and Engineering* 65(2):223-242, May 2008.

Dyreson, Curtis E., Richard T. Snodgrass, Faiz Currim, Sabah Currim, and Shalesh Joshi, "Weaving Temporal and Reliability Aspects into a Schema Tapestry, " *Data Knowledge and Engineering* 63(3):726–747, December 2007.

Terenziani, Paolo, Richard T. Snodgrass, Alessio Bottrighi, Mauro Torchio, and Gianpaolo Molino, "Extending Temporal Databases to Deal with Telic/Atelic Medical Data," *Artificial Intelligence in Medicine Europe Journal* 39:113–126, 2007.

Urgun, Bedridan, Curtis E. Dyreson, Richard T. Snodgrass, Jessica K. Miller, R. Nick Kline, Michael D. Soo, and Christian S. Jensen, "Integrating Multiple Calendars using τZaman," *Software—Practice and Experience* 37(3):267–308, 2007.

Khatri, Vijay, Sudha Ram and Richard T. Snodgrass, "On Augmenting Database Design-Support Environments to Capture the Geo-Spatio-Temporal Data Semantics," *Information Systems* 31(2):98–133, April, 2006, DOI: 10.1016/j.is.2004.10.001.

Gao, Dengfeng, Christian S. Jensen, Richard T. Snodgrass and Michael Soo, "Join Operations in Temporal Databases," *International Journal on Very Large Databases* 14(1):2–29, March 2005.

Vega López, Ines F., Richard T. Snodgrass, and Bongki Moon, "Spatiotemporal Aggregate Computation: A Survey," *IEEE Transactions on Knowledge and Data Engineering*, 17(2):271–286, February 2005.

Torp, Kristian, Christian S. Jensen and Richard T. Snodgrass, "Modification Semantics in Now-Relative Databases," *Information Systems* 29(78):653–683, December 2004.

Khatri, Vijay, Sudha Ram, and Richard T. Snodgrass, "Augmenting a Conceptual Model with Geospatiotemporal Annotations," *IEEE Transactions on Knowledge and Data Engineering*, 16(11):1324–1338, November 2004.

Gao, Dengfeng, Jose A. G. Gendrano, Bongki Moon, Richard T. Snodgrass, Minseok Park, Bruce C. Huang, and James M. Rodrigue, "Main Memory-Based Algorithms for Efficient Parallel Aggregation for Temporal Databases," *Distributed and Parallel Databases Journal* 16(2):123–163, September 2004.

Terenziani, Paolo and Richard T. Snodgrass, "Reconciling Point-Based and Interval-Based Semantics in Temporal Databases: A Treatment of the Telic/Atelic Distinction," *IEEE Transactions on Knowledge and Data Engineering*, 16(5):540–551, May 2004.

Khatri, Vijay, Sudha Ram, Richard T. Snodgrass and Grady M. O'Brien, "Supporting User-defined Granularities and Indeterminacy in a Spatiotemporal Conceptual Data Model," *Annals of Mathematics and Artificial Intelligence*, Special Issue on Spatial and Temporal Granularity, Kluwer Academic Publishers, 36(1-2): 195-232 (2002). Also TEMPIS TR-55.

Slivinskas, Giedrius, Christian S. Jensen, and Richard T. Snodgrass, "A Foundation for Conventional and Temporal Query Optimization Addressing Duplicates and Ordering," *IEEE Transactions on Knowledge and Data Engineering*, 13(1):21–49, January/February 2001.

Böhlen, Michael, Christian S. Jensen, and Richard T. Snodgrass, "Temporal Statement Modifiers," *ACM Transactions on Database Systems*, 25(4):407–456. December 2000.

Torp, Kristian, Christian S. Jensen, and Richard T. Snodgrass, "Effective Timestamping in Databases," *International Journal on Very Large Databases* 8(3+4):267–288, February 2000.

Dyreson, Curtis E., William Evans, Hong Lin, and Richard T. Snodgrass, "Efficiently Supporting Temporal Granularities," *IEEE Transactions on Knowledge and Data Engineering*, 12(4): 568–587, July/August 2000.

Dyreson, Curtis E. and Richard T. Snodgrass, "Supporting Valid-time Indeterminacy," *ACM Transactions on Database Systems* 22(1):1–57, March 1998.

Clifford, James, Curtis E. Dyreson, Tomaz Isakowitz, Christian S. Jensen and Richard T. Snodgrass, "On the Semantics of 'Now' in Databases," *ACM Transactions on Database Systems* 22(2):171–214, June 1997.

Bair, John, Michael Böhlen, Christian S. Jensen, and Richard T. Snodgrass, "Notions of Upward Compatibility of Temporal Query Languages," *Business Informatics (Wirtschafts Informatik)* 39(1):25–34, February 1997.

Jensen, Christian S., Richard T. Snodgrass and Michael D. Soo, "Extending Existing Dependency Theory to Temporal Databases," *IEEE Transactions on Knowledge and Data Engineering* 8(4):563–582, August 1996.

Özsoyoğlu, Gutekin and Richard T. Snodgrass, "Temporal and Real-Time Databases: A Survey," *IEEE Transactions on Knowledge and Data Engineering* 7(4):513–532, August 1995.

Jensen, Christian S., Michael D. Soo and Richard T. Snodgrass, "Unifying Temporal Data Models via a Conceptual Model," *Information Systems* 19(7):513–547, December 1994.

Jensen, Christian S. and Richard T. Snodgrass, "Temporal Specialization and Generalization," *IEEE Transactions on Knowledge and Data Engineering* 6(6):954–974, December 1994.

Dyreson, Curtis E. and Richard T. Snodgrass, "Efficient Timestamp Input and Output," *Software—Practice and Experience* 24(1):89–109, January 1994.

Snodgrass, Richard T., Santiago Gomez and Edwin McKenzie, "Aggregates in the Temporal Query Language TQuel," *IEEE Transactions on Knowledge and Data Engineering* 5(5):826–842, October, 1993.

Dyreson, Curtis E. and Richard T. Snodgrass, "Timestamp Semantics and Representation," *Information Systems* 18(3):143–166, September 1993.

Ogle, David, Karsten Schwan, and Richard T. Snodgrass, "Application-Dependent Dynamic Monitoring of Real-Time Distributed and Parallel Systems," *IEEE Transactions on Parallel and Distributed Systems* 4(7):762–778, July 1993. Reprinted in *Monitoring and Debugging of Distributed Real-Time Systems*, J. J. P. Tsai and S. J. H. Yang, editors, IEEE Press, January 1995, pp. 339–355.

Hsu, Suchen and Richard T. Snodgrass, "Optimal Block Size for Set-valued Attributes," *Information Processing Letters* 45(3):153–158, March 1993.

McKenzie, Edwin and Richard T. Snodgrass, "An Evaluation of Relational Algebras Incorporating the Time Dimension in Databases," *ACM Computing Surveys* 23(4):501–543, December 1991.

McKenzie, Edwin and Richard T. Snodgrass, "Schema Evolution and the Relational Algebra," *Information Systems* 15(2):207–232, June 1990.

Shannon, Karen P. and Richard T. Snodgrass, "Mapping the Interface Description Language Type Model into C," *IEEE Transactions on Software Engineering* 15(11):1333–1346, November 1989.

Ahn, Ilsoo and Richard T. Snodgrass, "Performance Analysis of Temporal Queries," *Information Sciences: An International Journal* 49(1):103–146, October 1989.

Ahn, Ilsoo and Richard T. Snodgrass, "Partitioned Storage Structures for Temporal Databases," *Information Systems* 13(4):369–391, December 1988.

Hoffman, Daniel and Richard T. Snodgrass, "Trace Specifications: Methodology and Models," *IEEE Transactions on Software Engineering* 14(9):1243–1252, September 1988.

Snodgrass, Richard T., "A Relational Approach to Monitoring Complex Systems," *ACM Transactions on Computer Systems* 6(2):157–196, May 1988.

Snodgrass, Richard T., "The Temporal Query Language TQuel," *ACM Transactions on Database Systems* 12(2):247–298, June 1987.

Snodgrass, Richard T. and Ilsoo Ahn, "Temporal Databases," *IEEE Computer* 19(9):35–42, September, 1986.

Snodgrass, Richard T., "An Object-Oriented Command Language," *IEEE Transactions on Software Engineering* SE-9(1):1–8, January 1983. Reprinted in *Tutorial: Object-Oriented Computing*, by G. E. Peterson, Vol. 2, Computer Society Press, Washington, D.C., 1987, pp. 251–258.

Segall, Zary, A. Singh, Richard T. Snodgrass, Anita Jones, and Daniel Siewiorek, "An Integrated Instrumentation Environment," *IEEE Transactions on Computers* C-32(4):4–14, January 1983. Reprinted in *Parallel Processing, the Cm* Experience*, by E. F. Gehringer, D. Siewiorek, and Z. Segall, Digital Press, 1987, pp. 207–222.

Invited Papers

Snodgrass, R. T., "Towards a Science of Temporal Databases," Keynote Address, *Proceedings of the International Symposium on Temporal Representation and Reasoning*, Alicante, Spain, V. Goranko and X. Sean Wang (ed), pages 6–7, June 2007.

Abiteboul, Serge, Rakesh Agrawal, Phil Berstein, Mike Carey, Stefano Ceri, Bruce Croft, David DeWitt, Mike Franklin, Hector Garcia Molina, Dieter Gawlick, Jim Gray, Laura Haas, Alon Halevy, Joe Hellerstein, Yannis Ioannidis, Martin Kersten, Michael Pazzani, Mike Lesk, David Maier, Jeff Naughton, Hans Schek, Timos Selis, Avi Silberschatz, Mike Stonebraker, Rick Snodgrass, Jeff Ullman, Gerhard Weikum, Jennifer Widom, and Stan Zdonik, "The Lowell Database Research Self-Assessment," *CACM*, 48(5):111–118, May 2005.

Richard T. Snodgrass, "Rights and Responsibilities in ACM Publishing," *CACM* 45(2):97–101, February 2002.

Jensen, Christian S. and Richard T. Snodgrass, "Temporal Data Management," *IEEE Transactions on Knowledge and Data Engineering* 11(1):36–44, January/February 1999.

Snodgrass, Richard T., "The Inefficiency of Misalignment," in *ACM Computing Surveys* 28(4es), Article 89, December 1996. At URL: `http://www.acm.org/pubs/citations/journals/surveys/1996-28-4es/a89-snodgrass/`

Silberschatz, Avi., Stanley Zdonik, Jose Blakeley, Peter Buneman, Umeshwar Dayal, Timos Imielinski, Sushil Jajodia, Hank Korth, Guy Lohman, David Lomet, David Maier, Frank Manola, Tamer Özsu, Raghu Ramakrishnan, Krithi Ramamritham, Hans Schek, Richard T. Snodgrass, Jeff Ullman, and Jennifer Widom, "Strategic Directions in Database Systems—Breaking Out of the Box," *ACM Computing Surveys* 28(4):764–778, December 1996. At URL: `http://www.acm.org/surveys/sdcr/`

Jensen, Christian S. and Richard T. Snodgrass, "Semantics of Time-Varying Information," Invited Project Review, *Information Systems* 21(4):311–352, June 1996.

Al-Tara, K. K., Richard T. Snodgrass, and Michael D. Soo, "A Bibliography on Spatio-temporal Databases," *International Journal of Geographic Information Sciences* 8(1):95–103, January-February 1994.

Snodgrass, Richard T., "Temporal Databases," *Theory and Methods of Spatio-Temporal Reasoning in Geographic Space*, Springer-Verlag, Pisa, Italy, LNCS 639, Andrew U. Frank, I. Campari, and U. Formentini, eds, pp. 22-64, September 1992.

Refereed Conference and Workshop Articles

Gautham Narayan, Richard Snodgrass, John Keceioglu, Abhijit Saha, Thomas Matheson, Rob Seaman, Tim Jenness, Jackson Toeniskotter, Shuo Yang, Zhe Wang, Jen Dempsey, "ANTARES: Hunting the 'rarest of the rare' in the time-domain," 29th International Astronomical Union General Assembly, Honolulu, Hawaii, August, 2015.

Jennifer Dempsey, Richard T. Snodgrass, Isabel Kishi, and Allison Titcomb, "The Emerging Role of Self-Perception in Student Intentions," in *Proceedings of the ACM Conference on Computer Science Education (SIGCSE)*, March 2015, 6 pp.

Thomas Matheson, Abhijit Saha, Richard T. Snodgrass, and John Kececioglu, "ANTARES: A Prototype Transient Broker System," in *American Astronomical Meeting Abstracts*, **223**, #343.02, 2014.

Thomas Matheson, Abhijit Saha, Richard T. Snodgrass, and John Kececioglu, "ANTARES: The Arizona-NOAO Temporal Analysis and Response to Events System," in *Hot-Wiring the Transient Universe 3*, P. Wozniak, M. Graham, and A. Mahabal (eds.), 2014.

Currim, Sabah, Richard T. Snodgrass, Young-Kyoon Suh, Rui Zhang, Matthew Johnson, and Cheng Yi, "DBMS Metrology: Measuring Query Time," in *Proceedings SIGMOD International Conference*, 12 pages, June 2013.

Pavlou, Kyriacos and Richard T. Snodgrass, "Temporal Implications of Database Information Accountability," in *Proceedings of the International Symposium on Temporal Representation and Reasoning* (*TIME*), Leicester, UK, pp. 125–132, September 2012.

Browne, Glenn J., Vijay Khatri, Jeffrey Parsons, and Richard T. Snodgrass, "The Relationship Between User Requirements and Conceptual Models: Theory and an Empirical Investigation," in *Proceedings of the 2012 SIGSAND Symposium*, 19 pages, 2012.

Zhang, Rui, Saumya Debray, and Richard T. Snodgrass, "Micro-Specialization: Dyanmic Code Specialization of Database Management Systems," in CGO'12, pp. 63–73, April 2012.

Zhang, Rui, Richard T. Snodgrass, and Saumya Debray, "Micro-Specialization in DBMSes," in *Proceedings of the IEEE International Conference on Data Engineering* (ICDE), pp. 690–701, April 2012, Washington, D.C.

Snodgrass, Richard T., Dengfeng Gao, Rui Zhang, and Stephen W. Thomas, "Temporal Support for Persistent Stored Modules," *Proceedings of the IEEE International Conference on Database Engineering* (ICDE), Washington, D.C, pp. 114–125, April 2012.

Pavlou, Kyriacos and Richard T. Snodgrass, "Achieving Database Information Accountability in the Cloud," in the *Proceedings of the ICDE Data Management in the Cloud Workshop* (DMC'12), in conjunction with ICDE 2012, pp. 147–150, April 2012.

Zhang, Rui, Richard T. Snodgrass, and Saumya Debray, "Application of Micro-Specialization to Query Evaluation Operators," in *Proceedings of the International Workshop on Self Managing Database Systems*

(SMDB), in conjunction with ICDE 2012, pp. 315–321, April 2012, Washington, D.C.

Anselma, Luca, Paolo Terenziani, and Richard T. Snodgrass, "Valid-Time Indeterminacy in Temporal Relational Databases: A Family of Data Models," in *Proceedings of the International Symposium on Temporal Representation and Reasoning (TIME)*, pp. 139–145, 2010.

Mitra, Soumyadeb, Marianne Winslett, Richard T. Snodgrass, and Shashank Yaduvanshi, "An Architecture for Regulatory Compliant Database Management," in *Proceedings of the International Conference on Data Engineering (ICDE)*, 12 pages, Shanghai, China, 2009.

Dyreson, Curtis, Richard T. Snodgrass, Faiz Currim, and Sabah Currim, "Schema-mediated Exchange of Temporal XML Data," in *Proceedings of the Entity Relationship Conference* (ER2006), LNCS 4215, Springer, pp. 212–227, Tucson, November, 2006.

Pavlou, Kyri and Richard T. Snodgrass, "Forensic Analysis of Database Tampering," in *Proceedings of the ACM SIGMOD International Conference on Management of Data* (SIGMOD), pp. 109–120, Chicago, June, 2006.

Dyreson, Curtis, Richard T. Snodgrass, Faiz Currim, Sabah Currim, and Shailesh Joshi, "Validating Quicksand: Schema Versioning in τXSchema," in *Proceedings of the Third International Workshop on XML Schema and Data Management* (XSDM 2006), Atlanta, Georgia, 10 pages, April, 2006.

Terenziani, Paolo, Richard T. Snodgrass, Alessio Bottrighi, Mauro Torchio, and Gianpaolo Molino, "Extending Temporal Databases to Deal with Telic/Atelic Medical Data," in *Proceedings of the Artificial Intelligence in Medicine Europe* (AIME), LNCS volume 3581, pp. 58–66, Springer, 2005, DOI: 10.1007/11527770_9.

Lomet, David, Richard T. Snodgrass, and Christian S. Jensen, "Using the Lock Manager to Choose Timestamps," in *Proceedings of the Ninth International Database Engineering and Applications Symposium* (IDEAS 2005), Montreal, Canada, July 2005.

Zhang, Shuohao, Curtis Dyreson and Richard T. Snodgrass, "Schema-less, Semantics-Based Change Detection for XML Documents," in *Proceedings of WISE (Web-based Information Systems Engineering)*, Brisbane, Australia, 12 pages, November 2004.

Snodgrass, Richard T., Shilong Stanley Yao and Christian Collberg, "Tamper Detection in Audit Logs," in *Proceedings of the International Conference on Very Large Databases*, Toronto, Canada, pp. 504–515, August–September 2004.

Currim, Faiz, Sabah Currim, Curtis E. Dyreson and Richard T. Snodgrass, "A Tale of Two Schemas: Creating a Temporal XML Schema from a Snapshot Schema with τXSchema," in *Proceedings of the International Conference on Extending Data Base Technology*, Crete, pp. 348–365, 2004.

Gao, Dengfeng and Richard T. Snodgrass, "Temporal Slicing in the Evaluation of XML Queries," in the *Proceedings of the International Conference on Very Large Databases*, Berlin, pp. 632–643, September 2003.

Li, Wei, Richard T. Snodgrass, and Dengfeng Gao, "Skew Handling Techniques in Sort-Merge Join," in the *Proceedings of the ACM SIGMOD International Conference on Management of Data*, pp. 169–180, June 2002.

Dunn, Joseph, Davey, Sean, Anne Descour and Richard T. Snodgrass, "Sequenced Subset Operators: Definition and Implementation," *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, pp. 81–92, February 2002.

Ram, Sudha, Richard T. Snodgrass, Vijay Khatri and Y. Hwang, "DISTIL: A Design Support Environment for Conceptual Modeling of Spatiotemporal Requirements," in *Proceedings of the International Conference on Conceptual Modeling (ER)*, Yokohama, Japan, pp. 70–83, November 2001.

Slivinskas, Giedrius., Christian S. Jensen, and Richard T. Snodgrass, "Adaptable Query Optimization and Evaluation in Temporal Middleware," in *Proceedings of the ACM SIGMOD International Conference on Management of Data*, pp. 127–138, June 2001.

Li, Wei, Richard T. Snodgrass, Sheng Deng, V. K. Gattu, and A. Kasthurirangan, "Efficient Sequenced Temporal Integrity Checking," in *Proceedings of the IEEE International Conference on Data Engineering*, Heidelberg, Germany, pp. 131–140, April 2001.

Slivinskas, Giedrius, Christian S. Jensen, and Richard T. Snodgrass, "Query Plans for Conventional and Temporal Queries Involving Duplicates and Ordering," in *Proceedings of the IEEE International Conference on Data Engineering (ICDE2000)*, San Diego, pp. 547–558, February 2000.

Gendrano, Jose A. G., Bruce C. Huang, James M. Rodrigue, Bongki Moon and Richard T. Snodgrass, "Parallel Algorithms for Computing Temporal Aggregates," in *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, pp. 418–427, March 1999.

Torp, Kristian, Christian S. Jensen, and Richard T. Snodgrass, "Stratum Approaches to Temporal DBMS Implementation," in *Proceedings of the International Database Engineering and Applications Symposium*, Cardiff, Wales, U.K., pp. 4–13, July 8–10, 1998.

Böhlen, Michael H., Richard T. Snodgrass, and Michael D. Soo, "Coalescing in Temporal Databases," in the *Proceedings of the International Conference on Very Large Databases (VLDB)*, Mumbai (Bombay) India, pp. 180–191, September 1996.

Böhlen, Michael H., Jan Chomicki, Richard T. Snodgrass, and David Toman, "Querying TSQL2 Databases with Temporal Logic," in *Proceedings of Extending Data Base Technology (EDBT)*, France, pp. 325–341, March 1996, 16 pages.

Jensen, Christian S. and Richard T. Snodgrass, "Semantics of Time-Varying Attributes and Their Use for Temporal Database Design," in *Proceedings of the Object-Oriented and Entity Relationship Conference*, Gold Coast, Australia, pp. 366-377, December 1995.

Böhlen, Michael H., Christian S. Jensen and Richard T. Snodgrass, "Evaluating the Completeness of TSQL2," in *Proceedings of the VLDB International Workshop on Temporal Databases (VLDB)*, Zürich, Switzerland, September, in **Recent Advances in Temporal Databases**, J. Clifford and A. Tuzhilin (eds.), Springer-Verlag, New York, pp. 153–174, 1995.

Kline, R. Nick and Richard T. Snodgrass, "Computing Temporal Aggregates," in *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, Taipei, Taiwan, pp. 222-231, March 1995.

Soo, Michael D., Richard T. Snodgrass, and Christian S. Jensen, "Efficient Evaluation of the Valid-Time Natural Join," in *Proceedings of the International Conference on Data Engineering (ICDE)*, Houston, TX, pp. 282–292, February 1994.

Dyreson, Curtis E. and Richard T. Snodgrass, "Valid-time Indeterminacy," in *Proceedings of the International Conference on Data Engineering (ICDE)*, pp. 335–343, Vienna, April 1993. Awarded best paper.

Jensen, Christian S., Michael D. Soo, and Richard T. Snodgrass, "Unification of Temporal Data Models," in *Proceedings of the International Conference on Data Engineering (ICDE)*, pp. 262–271, Vienna, April 1993.

Jensen, Christian S. and Richard T. Snodgrass, "Specialized Temporal Relations," in *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, pp. 594–603, Phoenix, AZ, February 1992.

Snodgrass, Richard T. and Karen P. Shannon, "Fine-Grained Data Management to Achieve Evolution Resilience in a Software Development Environment," in *Proceedings of the Fourth Symposium on Software Development Environments*, Irvine, CA, pp. 144–156, December 1990. Reprinted in *Sizing Up Software Development Environments: Readings in SDE Research from the Standpoint of Scale*, D. W. Perry and G. E. Kaiser, eds, Oxford University Press, Inc, 1994.

Shannon, Karen P. and Richard T. Snodgrass, "Semantic Clustering in a Persistent Object Store," in *Proceedings of the Fourth International Workshop on Persistent Object Systems: Design, Implementation, and Use*, Martha's Vineyard, MA, September 1990 (refereed from extended abstract). Reprinted in *Implementing Persistent Object Bases: Principles and Practice*, edited by Alan Dearle, Gail M. Shaw, and Stanley B. Zdonik, Morgan Kaufmann Publishers, pp. 389–402, 1991.

Snodgrass, Richard T. and Karen P. Shannon, "Type Extension in IDL," in the Federal CASE Conference on Integrated Data Management for Software Engineering, Gaithersburg, MD, 17 pages, November 1989.

Snodgrass, Richard T., "A Bottom-up Approach to Software CAD Databases," in *Proceedings of the ACM SIGMOD Workshop on Software CAD Databases*, Napa, CA, pp. 127–135, February 1989 (refereed from extended abstract).

McKenzie, Edwin and Richard T. Snodgrass, "Extending the Relational Algebra To Support Transaction Time," in *Proceedings of the ACM-SIGMOD International Conference on Management of Data*, San Francisco, CA, pp. 467–478, May 1987.

Snodgrass, Richard T. and Karen P. Shannon, "Supporting Flexible and Efficient Tool Integration," in *Advanced Programming Environments: Proceedings of an International Workshop*, R. Conradi, T. M. Didriksen, and D. H. Wanvik, Eds, Lecture Notes in Computer Science, Vol. 244, Springer-Verlag, pp. 290–

313, June 1986 (refereed from extended abstract).

Ahn, Ilsoo and Richard T. Snodgrass, "Performance Evaluation of a Temporal Database Management System," in *Proceedings of the ACM-SIGMOD International Conference on Management of Data*, Washington, D.C., pp. 96–107, May 1986.

Snodgrass, Richard T. and Ilsoo Ahn, "A Taxonomy of Time in Databases," in *Proceedings of the ACM-SIGMOD International Conference on Management of Data*, Austin, TX, pp. 236–246, May 1985. Reprinted in *Tutorial: Database Management*, by J. A. Larson, Computer Society Press, Washington, D.C., pp. 398–408, 1987, and in *Tutorial: Parallel Architectures for Database Systems*, by A. R. Hurson, L. L. Miller, and S. H. Pakzad, Computer Society Press, Washington, D.C., pp. 443–453, 1988.

Snodgrass, Richard T., "The Temporal Query Language TQuel," in *Proceedings of the ACM SIGAct-SIGMOD Symposium on Principles of Database Systems (PODS'84)*, Waterloo, Ontario, Canada, pp. 204–213, April 1984. Reprinted in *Tutorial: Parallel Architectures for Database Systems*, by A. R. Hurson, L. L. Miller, and S. H. Pakzad, Computer Science Press, Washington, D.C., pp. 454–463, 1988.

Snodgrass, Richard T., "Monitoring in a Software Development Environment: A Relational Approach," in *Proceedings of the Symposium on Practical Software Development Environments*, Pittsburgh, PA, pp. 124–131, April 1984.

Snodgrass, Richard T., "Monitoring Multiprocessors: A Relational Approach," Workshop on Multiprocessors for High Performance Parallel Computation, Seven Springs, PA, 6 pages, June 1983 (refereed from extended abstract).

Snodgrass, Richard T., "A Sophisticated Microcomputer User Interface," in *Proceedings of the Third Symposium of Small Systems*, Palo Alto, CA, pp. 97–107, September 1980.

Patents

US Patent: "Method and Apparatus for Changing Temporal Database Information," August 27, 2002, 6,442,543. Inventors: Richard T. Snodgrass and J. Bair. Assignee: Amazon.com, Inc.

US Patent: "Method and Apparatus for Changing Temporal Database Information," November 27, 2001, 6,324,535. Inventors: J. Bair and Richard T. Snodgrass. Assignee: Amazon.com, Inc.

US Patent: "Method and Apparatus for Changing Temporal Database," February 6, 2001, 6,185,556. Inventors: Richard T. Snodgrass and J. Bair. Assignee: Amazon.com, Inc.

US Patent: "Method and Apparatus for Producing Sequenced Queries," December 7, 1999, 5,999,924. Inventors: Bair, J. and Richard T. Snodgrass. Assignee: Amazon.com, Inc.

Edited Proceedings

Apers, Peter M. G., Paolo Atzeni, Stefano Ceri, S. Paraboschi, K. Ramamohanarao, and Richard T. Snodgrass (editors), *Proceedings of the 27th International Conference on Very Large Data Bases*, Rome, September 2001.

Snodgrass, Richard T. and Marianne Winslett (editors), *Proceedings of the 1994 ACM SIGMOD International Conference on Data Management*, Minneapolis, MN, May 24–27, 1994. *ACM SIGMOD Record* 22(2), June 1994.

Snodgrass, Richard T. (editor), *Proceedings of the International Workshop on an Infrastructure for Temporal Databases*, Arlington, TX, June 14–16, 1993.

Selected Reviews and Other Publications

Young Suh, Richard T. Snodgrass, and Rui Zhang, "AZDBLab: A Laboratory Information System for a Large-Scale Empirical Study," VLDB'14 Demos, September, 2014.

Kyriacos E. Pavlou and Richard T. Snodgrass, "Dragoon: An Information Accountability System for High-Performance Databases", demonstration, *IEEE International Conference on Data Engineering*, April 2012, Washington, D.C., pp. 1329–1332, 2012.

Richard T. Snodgrass, "On experimental algorithmics: an interview with Catherine McGeoch and Bernard Moret," *ACM Ubiquity*, http://ubiquity.acm.org/article.cfm?id=2015997 August 2011.

Richard T. Snodgrass, "An Interview with Melanie Mitchell On Complexity," *ACM Ubiquity*, `http://ubiquity.acm.org/article.cfm?id=1967047` April 2011.

Richard T.Snodgrass, "Keep Track," *Teradata Magazine* 10(Q4), October 24, 2010, `http://www.teradatamagazine.com/v10n04/Tech2Tech/Keep-Track/`, 3 pages.

Snodgrass, Richard T., "Editorial: Single- Versus Double-Blind Reviewing," *ACM Transactions on Database Systems*, 32(1), article 1, 31 pages, March, 2007.

Snodgrass, Richard T., "Frequently-Asked Questions About Double-Blind Reviewing," *ACM SIGMOD Record* 36(1):60–62, March 2007.

Snodgrass, Richard T., "Changes to the *TODS* Editorial Board," *ACM SIGMOD Record* 35(4):77, December 2006.

Snodgrass, Richard T., "Single- Versus Double-Blind Reviewing: An Analysis of the Literature," *ACM SIGMOD Record* 35(3):8–21, September 2006.

Snodgrass, Richard T., "Changes to the *TODS* Editorial Board," *ACM SIGMOD Record* 35(2):86, June 2006.

Philip A. Bernstein, Elisa Bertino, Andreas Heuer, Christian S. Jensen, Holger Meyer, M. Tamer Özsu, Richard T. Snodgrass, and Kyu-Young Whang, "An Apples-to-Apples Comparison of Two Database Journals," *SIGMOD Record* 34(4):61–64, December, 2005.

Snodgrass, Richard T., "Changes to the *TODS* Editorial Board," *ACM SIGMOD Record* 34(4):92, December 2005.

Snodgrass, Richard T., "CMM and ACM *TODS*," *ACM SIGMOD Record* 34(3):114–117, September 2005.

Philip A. Bernstein, David DeWitt, Andreas Heuer, Zachary Ives, Christian S. Jensen, Holger Meyer, M. Tamer Özsu, Richard T. Snodgrass, Kyu-Young Whang, and Jennifer Widom, "Database Publication Practices," in *Proceedings of the VLDB Conference*, Trondheim, Norway, September 2005, 5 pages.

Snodgrass, Richard T., " Developments at ACM *TODS*," *SIGMOD Record* 34(1):90, March 2005.

Snodgrass, Richard T., "Changes to the ACM *TODS* Editorial Board," *SIGMOD Record* 33(4):103, December 2004.

Snodgrass, Richard T. and M. L. Brucks, "Branding Yourself," *SIGMOD Record* 33(2):117–125, June 2004.

Snodgrass, Richard T., "*TODS* Special Issues," *SIGMOD Record* 33(1):5–6, March 2004.

Snodgrass, Richard T., "Developments at *TODS*," *SIGMOD Record* 32(4):14–15, December 2003.

Snodgrass, Richard T., "Journal Relevance," *SIGMOD Record* 31(3):11–15, September 2003.

Snodgrass, Richard T., "*TODS* Reviewers," *SIGMOD Record* 31(2):113–114, June 2003.

Snodgrass, Richard T., "Our Past as a Prelude to our Future," White Paper, June 2003, 10 pages.

Snodgrass, Richard T., "ACM *TODS* in this Internet Age," *SIGMOD Record* 32(1):4–5, March 2003.

Snodgrass, Richard T., "Rights of *TODS* Readers, Authors and Reviewers," *SIGMOD Record* 31(4):5–9, December 2002.

Apers, Peter, Stefano Ceri, and R. T. Snodgrass, "Editorial," *VLDB Journal* 11(3): 177–178, November 2002.

Snodgrass, Richard T., "*TODS* Perceptions and Misconceptions," *SIGMOD Record* 31(3):6–8, September 2002.

Snodgrass, Richard T., "Influential Papers" *SIGMOD Record* 31(3):63, September 2002.

Snodgrass, Richard T., "Editorial," *TODS*:26(3):261–263, September 2001.

Snodgrass, Richard T. (ed.), SGB Portal Committee, "A Proposal for an ACM Computing Portal," white paper, 24 pages, September 1999.

Tsotras, Vassilis, Christian S. Jensen, and Richard T. Snodgrass, "An Extensible Notation for Spatiotemporal Index Queries," *ACM SIGMOD Record* 27(1):47–53, March 1998.

Snodgrass, Richard T., "Temporal Databases," in **Encyclopedia of Distributed Computing** Partha Dasgupta and James E. Urban (eds.), Kluwer Academic Publishers, 1998, 5 pages.

Snodgrass, Richard T., Michael H. Böhlen, Christian S. Jensen and Andreas Steiner, "Adding Transaction Time to SQL/Temporal," change proposal, ANSI X3H2-96-502r2, ISO/IEC JTC1/SC21/ WG3 DBL MAD-147r2, November 1996, 47 pages.

Snodgrass, Richard T., Michael H. Böhlen, Christian S. Jensen and Andreas Steiner, "Adding Valid Time to SQL/Temporal," change proposal, ANSI X3H2-96-501r2, ISO/IEC JTC1/SC21/ WG3 DBL MAD-146r2,

November 1996, 77 pages.

Segev, Arie, Christian S. Jensen, and Richard T. Snodgrass, "Report on The 1995 International Workshop on Temporal Databases," *ACM SIGMOD Record* 24(4):46–52, December 1995.

Özsoyoğlu, Gultekin and Richard T. Snodgrass, "Guest Editors' Introduction to Special Section On Temporal and Real-Time Databases," *IEEE Transactions on Knowledge and Data Engineering* 7(4):511–512, August 1995.

Clifford, James, Christian S. Jensen, Richard T. Snodgrass, Michael H. Böhlen, H. Dewan, and D. Schmidt, "Panel: The State-of-the-Art in Temporal Data Management: Perspectives from the Research and Financial Applications Communities, Workshops in Computing, in *Proceedings of the International Workshop on Temporal Databases: Recent Advances in Temporal Databases*, James Clifford and Alexander Tuzhilin (eds), Springer-Verlag New York, Zürich, Switzerland, pages 356–357, 1995.

Snodgrass, Richard T., Krishna Kulkarni, Henry Kucera, and Nelson Mattos, "Proposal for a new SQL Part—Temporal," ISO/IEC JTC1/SC21 WG3 DBL RIO-75, X3H2-94-481, November 2, 1994, 26 pages.

Snodgrass, Richard T., Ilsoo Ahn, Gad Ariav, Don Batory, James Clifford, Curtis E. Dyreson, Ramez Elmasri, Fabio Grandi, Christian S. Jensen, Wolfgang Käfer, Nick Kline, Krishna Kulkarni, T. Y. Cliff Leung, Nikos Lorentzos, John F. Roddick, Arie Segev, Michael D. Soo and Suryanarayana M. Sripada, "A TSQL2 Tutorial," in *ACM SIGMOD Record* 23(3):27–33, September 1994.

Snodgrass, Richard T., Ilsoo Ahn, Gad Ariav, Don Batory, James Clifford, Curtis E. Dyreson, Ramez Elmasri, Fabio Grandi, Christian S. Jensen, Wolfgang Käfer, Nick Kline, Krishna Kulkarni, T. Y. Cliff Leung, Nikos Lorentzos, John F. Roddick, Arie Segev, Michael D. Soo and Suryanarayana M. Sripada, "Announcement—the temporal query language TSQL2 final language definition," in *ACM SIGMOD Record* 23(3):34, September, 1994.

Snodgrass, Richard T., "Temporal Database Infrastructure," *SIGMOD Record* 23(1):34, March 1994.

Pissinou, Niki, Richard T. Snodgrass, Ramez Elmasri, Inderpal S. Mumick, M. Tamer Özsu, Barbara Pernici, Arie Segev, and Babis Theodoulidis, "Towards an Infrastructure for Temporal Databases: Report of an Invitational ARPA/NSF Workshop," *SIGMOD Record* 23(1):35–51, March 1994.

Jensen, Christian S., James Clifford, Ramez Elmasri, Shashi K. Gadia, Patrick Hayes, Sushil Jajodia (eds), Curtis E. Dyreson, Fabio Grandi, Wolfgang Käfer, R. Nick Kline, Nikos Lorentzos, Yannis Mitsopoulos, Angelo Montanari, D. Nonen, E. Peressi, Barbara Pernici, John F. Roddick, N. L. Sarda, Maria-Rita Scalas, Arie Segev, Richard T. Snodgrass, Michael D. Soo, Abduallah Tansel, R. Tiberio and Gio Wiederhold, "A Consensus Glossary of Temporal Database Concepts," *SIGMOD Record* 23(1):52–64, March 1994.

Snodgrass, Richard T., Ilsoo Ahn, Gadi Ariav, Donald S. Batory, James Clifford, Curtis E. Dyreson, Ramez Elmasri, Fabio Grandi, Christian S. Jensen, Wolfgang. Käfer, R. Nick Kline, Krishna Kulkarni, T. Y. Cliff Leung, Nikos Lorentzos, John F. Roddick, Arie Segev, Michael D. Soo, and Suri M. Sripada, "TSQL2 Language Specification," *SIGMOD Record* 23(1):65–86, March 1994.

Al-Tara, K. K., Richard T. Snodgrass, and Michael D. Soo, "Bibliography on Spatiotemporal Databases," *SIGMOD Record* 22(1):59–67, March 1993.

Jensen, Christian S. (editor), James Clifford, Curtis E. Dyreson, Shashi K. Gadia, Fabio Grandi, Sushil Jajodia, Nick R. Kline, Angelo Montanari, Daniel Nonen, Elisa Peressi, Barbara Pernici, John F. Roddick, Nandlal L. Sarda, Maria R. Scalas, Arie Segev, Richard T. Snodgrass, Michael D. Soo, Abdullah Tansel, and Paolo Tiberio, "Proposed Temporal Database Concepts - May 1993," in *Proceedings of the International Workshop on an Infrastructure for Temporal Databases*, Arlington, TX, pp. A-1–A-24, June 14–16, 1993.

Jensen Christian S. (editor), James Clifford, Curtis E. Dyreson, Shashi K. Gadia, Fabio Grandi, Sushil Jajodia, Nick R. Kline, Angelo Montanari, Daniel Nonen, Elisa Peressi, Barbara Pernici, John F. Roddick, Nandlal L. Sarda, Maria R. Scalas, Arie Segev, Richard T. Snodgrass, Michael D. Soo, Abdullah Tansel, and Paolo Tiberio, "Addendum to 'Proposed Temporal Database Concepts - May 1993'," in *Proceedings of the International Workshop on an Infrastructure for Temporal Databases*, Arlington, TX, pp. A-25–A-29, June 14–16, 1993.

Jensen, Christian S. and Richard T. Snodgrass, "Three Proposals for a Third-Generation Temporal Data Model," in *Proceedings of the International Workshop on an Infrastructure for Temporal Databases*,

Arlington, TX, pp. T-1–T10, June 14–16, 1993.

Jensen, Christian S., James Clifford, Shashi K. Gadia, Arie Segev, and Richard T. Snodgrass, "A Glossary of Temporal Database Concepts," *SIGMOD Record* 21(3):35–43, September 1992.

Snodgrass, Richard T., "Temporal Databases: Status and Research Directions," *ACM SIGMOD Record* special issue on Directions for Future Database Research, Won Kim, ed., 19(4):83–89, December 1990.

Stam, Robert B. and Richard T. Snodgrass, "A Bibliography on Temporal Databases," *IEEE Bulletin on Data Engineering* 11(4):53–61, December 1988.

Snodgrass, Richard T., "Displaying IDL Instances," *SIGPlan Notices* 22(11):10–17, Special Issue on IDL, November 1987.

Warren, W. B., J. Kickenson, and Richard T. Snodgrass, "A Tutorial Introduction to IDL," *SIGPlan Notices* 22(11):18–34, Special Issue on IDL, November 1987.

Snodgrass, Richard T. (editor), "Research Concerning Time in Databases: Project Summaries," *SIGMOD Record* 15(4):19–39, December 1986.

Snodgrass, Richard T., "Monitoring Distributed Systems: A Relational Approach," Ph.D. Dissertation. Computer Science Department, Carnegie Mellon University, December 1982.

Professional Activities

Editorial

Member, Editorial Board, ACM *Ubiquity*. January 2010 to present.

Member, Editorial Board, **Encyclopedia of Database Systems**, Springer, January 2007 to present.

Editor-in-Chief, *ACM Transactions on Database Systems*, July 2001 to November 2007.

> Associate Editor, July 1992 to June 2001.

> Information Director, March 1996 to June 2001.

Member, Editorial Board and Advisory Board, *ACM SIGMOD Digital Review*, May 1999 to January 2007.

Member, Editorial Board, *International Journal on Very Large Databases*, November 1996 to September 2003.

Guest co-editor, with Peter Apers and Stephano Ceri, Special Issue on Best Papers from VLDB, *International Journal on Very Large Databases*, 11(3), November 2002.

Member, Advisory Board, **Encyclopedia of Database Systems and Data Management**, Kluwer Academic Publishers, December 1999 to December 2001.

Member, Editorial Board, *IEEE Transactions on Knowledge and Data Engineering*, July 1995 to December 1999.

Member, Software Engineering Editorial Board, *International Journal of Computer and Software Engineering*, January 1991 to December 1995.

Guest co-editor, with Gultekin Özsoyoğlu, Special Section on Temporal and Real-Time Databases, *IEEE Transactions on Knowledge and Data Engineering* 6(4), August 1995.

Editor, "Temporal Database Infrastructure," Special Section of *SIGMOD Record* 23(1), March 1994.

Guest editor, Special Issue on Temporal Databases, *IEEE Bulletin on Data Engineering* 11(4), December 1988.

Program Committees Chaired

Chair, Americas Program Committee, International Conference on Very Large Data Bases (VLDB 2001), Rome, Italy, September 2001.

Chair, Program Committee, ACM SIGMOD International Conference on Management of Data, Minneapolis, MN, May 1994.

Vice-Chair, Program Committee, IEEE International Conference on Data Engineering, Houston, TX, February 1994.

Chair, Program Committee and Steering Committee member, DARPA/NSF International Workshop on an Infrastructure for Temporal Databases, Arlington, TX, June 1993.

Vice-Chair, Program Committee, IEEE International Conference on Data Engineering, Vienna, April 1993.

Program Co-chair, with J. Nestor, SEI-UNC Workshop on the Interface Description Language, Kiawah Island, South Carolina, May 1986.

Program Committees

Member, Program Committee, Conference on Advanced Information Systems Engineering (CAiSE): 1998; International Conference on Management of Data (COMAD): 2000; Conference on Spatial Information Theory (COSIT): 1995; International Conference on Conceptual Modeling (ER): 2011, 2010; IEEE International Conference on Data Engineering (ICDE): 2010, 2009, 2008, 2007, 2004; International Symposium on Environments and Tools for Ada: 1992; International Conference on Extending Database Technology (EDBT), 2012; ACM SIGMOD International Conference on Management of Data (SIGMOD): 2009, 2007, 2006, 2004, 1995, 1993; PhD. Symposium, 2013 International Symposium on Spatial and Temporal Databases (SSTD): 2014, 2011, 2009, 2007, 2005, 2003; International Workshop on Spatio-Temporal Database Management (STDBM): 2006, 2004; International Symposium on Temporal Representation and Reasoning (TIME): 2013, 2012, 2008, 2006; International Conference on Very Large Data Bases (VLDB): 2012, 2011, 2010, 2005, 1999, 1995, 1994.

Member, Scientific Committee, Dagstuhl Seminar on Temporal Databases, Schloss Dagstuhl, Germany, June 23–27, 1997.

Member, Steering Committee, VLDB International Workshop on Temporal Databases, Zürich, Switzerland, September 1995.

Other Chaired Committees

Co-Chair (with David S. Wise), Committee on ACM History, March 2004 to December 31, 2008.

Co-director, with Christian S. Jensen, of the TIMECENTER International Center for the Support of Temporal Database Applications on Traditional and Emerging DBMS Technologies, March 1996 to present.

Chair, Ad Hoc Review Committee, reporting to the ACM Publications Board, June 2006 to November 2006.

Chair, Advisory Board and member of the Executive Committee, ACM SIGMOD Special Interest Group on Management of Data, July 2001 to August 2005.

Co-Chair (with David S. Wise), Presidential Ad Hoc Committee on ACM History, November, 2003 to February 2004.

Chair, ACM Publications Board, May 2000 to November 2001.

Chair, ACM SGB Portal Committee, May 1999 to September 2002.

Chair, ACM SGB Portal Management Board, February 2000 to September 2002.

Chair, ACM SIGMOD Special Interest Group on Management of Data, July 1997 to June 2001.

Chair, TSQL2 Language Design Committee, July 1993 to October 1994.

Other Professional Activities

Member, ACM History Committee, January 2009 to June 2010.

Chair, Outstanding Contribution to ACM Award Committee, Juoy 1, 2011 to June 30, 2012, member, January 22, 2009 to June 30, 2011.

Member, SIGMOD Advisory Board, September 2005 to December 2010.

Member, ACM *Computing Surveys* Editor-in-Chief Selection Committee, March 2006 to July 2006.

Member, *ICDE* Best Paper Award committee, November 2006–January 2007.

Member, ACM Publications Board, November 2001 to July 2002, August 1999 to May 2000.

Member, ACM Council, May 2000 to November 2001.

Ex officio member, ACM Executive Committee, June 2001 to November 2001.

Member-at-Large, SIG Governing Board Executive Committee, October 1998 to July 1999.

Invited participant, Databases Working Group, ACM Workshop on Strategic Directions in Computing Research, MIT, June 14 to 15, 1996.

Member, DARPA Working Group on Module Interconnection Frameworks, December 1990 to October 1993. Editor, Technical Note Series, May 1991 to October 1993.

Treasurer, IEEE International Conference on Data Engineering, Phoenix, AZ, February 1992.

Reviewer for the National Science Foundation, the Natural Sciences and Engineering Research Council of Canada, Louisiana Board of Regents, *ACM Computing Reviews*, *ACM Computing Surveys*, *ACM Trans. on Computer Systems*, *ACM Trans. on Database Systems*, *ACM Trans. on Information Systems*, *ACM Trans. on Programming Languages and Systems*, *The Computer Journal*, *IEEE Computer*, *IEEE Software*, *IEEE Trans. on Computers*, *IEEE Trans. on Knowledge and Data Engineering*, *IEEE Trans. on Software Engineering*, *Information Processing Letters*, *Information Sciences*, *Information*

and Software Technology, *Information Systems*, *Information Systems Research*, *International Journal of Geographical Information Systems*, *Journal of Intelligent Information Systems*, *Software—Practice and Experience*, *VLDB Journal*, and numerous conferences and book publishers.

Doctoral Dissertations Supervised

Suh, Y. K. "Exploring Causal Factors of DBMS Thrashing," May 2015, Korean Advanced Institute of Science and Technology (KAIST), Daejeon, Korea.

Pavlou, K. "Database Forensics in the Service of Information Accountability," October 2012.

Zhang, R., "Micro-Specialization: Dynamic Code Specialization in DBMSes," August 2012, Chief Technology Officer, Dataware Ventures, Tucson, AZ.

Gao, D. "Supporting the Procedural Component of Query Languages over Time-Varying Data." May 2009, Software Engineer, IBM, Santa Teresa, CA.

Kline, R. N. "Aggregation in Temporal Databases," May 1999. Software Design Engineer, Google, Redmond, WA.

Soo, M. D. "Constructing a Temporal Database Management System," October 1996. Software Engineer, Amazon.com, Seattle, WA.

Dyreson, C. E. "Valid-time Indeterminacy," October 1994. Assistant Professor, School of Electrical Engineering and Computer Science, Washington State University, Pullman, Washington.

Shannon, K. P. "Tool Integration Via Fine-Grained Data Management," July 1992.

McKenzie, E. "An Algebraic Language for Query and Update of Temporal Databases," September 1988. Director of Systems Technology, Air Force Computer Acquisitions Center, Air Force Communications Command, Hanscom AFB, MA.

Ahn, I. "Performance Modeling and Access Methods for Temporal Database Management Systems," August 1986. Research Scientist, Samsung Electronics Co., Seoul, Korea. Ph.D. dissertation nominated by department for ACM Doctoral Dissertation Award, July 1987.

Hoffman, D. "Specification of Communications Protocols Using Traces," October 1984. Associate Professor, Department of Computer Science, University of Victoria, B.C., Canada.