

Temporal Database Bibliography Update

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1 Introduction

This is the sixth bibliography to appear concerning temporal databases and represents a supplement to the 1993 bibliography by Kline (“An Update of the Temporal Database Bibliography,” *ACM SIGMOD Record*, 22, No. 4, Dec. 1993, pp. 66–80). Since these bibliographies are incremental, the earlier bibliographies should also be consulted to find previous entries. In addition, the reader should consult the references in the survey article by Ozsoyoglu & Snodgrass (“Temporal and Real-Time Databases: A Survey”, *IEEE Trans. on Knowledge and Data Engineering*, Vol. 7, No. 4, Aug. 1995, pp. 513–532), since those references are not included here.

The four previous bibliographies are: Soo (“Bibliography on Temporal Databases,” *ACM SIGMOD Record*, 20, No. 1, Mar. 1991, pp. 14–23.), Stam and Snodgrass (“A Bibliography on Temporal Databases,” *IEEE Database Engineering*, 7, No. 4, Dec. 1988, pp. 231–239), McKenzie (“Bibliography: Temporal Databases,” *ACM SIGMOD Record*, 15, No. 4, Dec. 1986, pp. 40–52), and Bolour, Anderson, Dekeyser, and Wong (“The Role of Time in Information Processing: A Survey,” *ACM SIGMOD Record*, 12, No. 3, 1983, pp. 27–50).

Since Kline’s bibliography, there have been several developments in temporal databases. The International Workshop on Temporal Databases was held in Zurich, Switzerland, Sept. 17–18, 1995 (its proceedings appear in *Recent Advances in Temporal Databases*, Clifford and Tuzhilin [eds.], Workshops in Computing Series, Springer). In addition, a consensus extension to SQL-92, the *Temporal Structured Query Language*, or *TSQL2*, was

developed. The language specification and other material appear in a new book, *The TSQL2 Temporal Query Language*, edited by R. Snodgrass (Kluwer Academic Publishers, 1995).

The present bibliography lists 463 new temporal database papers. Most of the included papers were published in 1994–95, some before 1994 and some will appear in 1996. Based on our findings we have updated the graph representing the growth of temporal database papers (Figure 1). As the graph shows, the growth is superlinear, demonstrating that the field remains vibrant. Note that the growth is even larger if one includes papers on spatio-temporal issues.

This bibliography is divided into four sections based on the well-accepted valid/transaction model of time (see Jensen [ed.], “A Consensus Glossary of Temporal Database Concepts,” *ACM SIGMOD Record*, 23, No. 1, Mar. 1994, pp. 52–64). Valid time of a fact is the time when the fact is true in the modeled reality. Transaction time is the time when a fact is stored in the database and can thus be queried. The four categories are: (1) papers dealing with *valid-time*, (2) papers dealing with *transaction-time*, (3) papers discussing concepts that apply to *both valid and transaction time*, and (4) papers related to other aspects of time, such as multimedia, temporal constraints, etc.

To save space, in the rest we have abbreviated references to standard database conferences (*SIGMOD*, *PODS*, *ICDE*, *EDBT*, *ER*, *DEXA*, *CIKM*, *DOOD*, *RIDE*, *BNCOD* etc.) and journals (*IEEE TKDE*, *ACM TODS*, *ACM TOIS*, *IS* etc.) Similarly, the above

mentioned workshop and book are termed as “Workshop on TDBs” and “TSQL2 Book”, respectively. The complete bibliography is available for anonymous ftp at <ftp.cs.arizona.edu> in the `bib` directory. We apologize in advance for any errors, misclassifications, or omissions and welcome any corrections. We would like to acknowledge R. Snodgrass and B. Aronov for comments on this paper and the many colleagues that supplied us with additional references. Any errors in the entries herein are entirely our own.

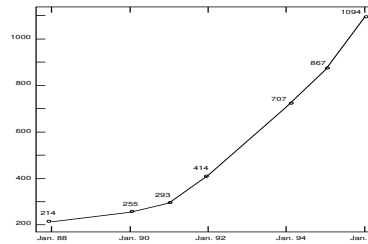


Figure 1: Temporal Database Papers

2 Valid Time

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