Conference and Journal Publications in Database Systems and Theory

This document rates the conferences and journal publications in the database area with respect to quality and impact. As in many other areas in computer science, the field has developed a systems component and a theory component with strong interactions but often distinct publication venues. We therefore discuss separately the database systems and the database theory areas. A key issue we address is the relative importance of conference and journal publications in these areas. In brief, high-quality conference publications are preferred to journal publications in the database systems area, where archival journals provide little added value. In database theory, conferences are also preferred for timely dissemination of results, but archival journals remain important. In regard to the issue of conference versus journal publications, we were largely guided by the observations made in the document “Evaluating Computer Scientists and Engineers For Promotion and Tenure” by prominent computer scientists David Patterson (University of California, Berkeley), Lawrence Snyder (University of Washington), and Jeffrey Ullman (Stanford University), from which we quote:

Allowing one's colleagues to examine and use one's creation is a more intimate way of conveying one's ideas than journal publishing, and is seen to be more effective. For experimentalists conference publication is preferred to journal publication, and the premier conferences are generally more selective than the premier journals [Academic Careers, 94]. In these and other ways experimental research is at variance with conventional academic publication traditions.

The reason conference publication is preferred to journal publication, at least for experimentalists, is the shorter time to print (7 months vs 1-2 years), the opportunity to describe the work before one's peers at a public presentation, and the more complete level of review (4-5 evaluations per paper compared to 2-3 for an archival journal) [Academic Careers, 94]. Publication in the prestige conferences is inferior to the prestige journals only in having significant page limitations and little time to polish the paper. In those dimensions that count most, conferences are superior.

We provide next a classification of conferences and journals in the database systems and database theory areas. We also classify conferences and journals from adjacent areas where database researchers may publish.

**Database Systems Area**

The observations of Patterson, et.al., are particularly relevant to the database systems area where the four top conferences have became the most visible and competitive forums for database systems research publications, characterized by all the attributes of quality works:

- **Quality Program Committees:** The program committees consist of the top researchers of the area.
- **Thorough Refereeing Tradition:** The publications typically receive three to four comprehensive evaluations.
- **Completeness of Publications:** The typical paper length criticism on the completeness of conference publications is least applicable in the database
systems area where submission guidelines typically call for 25-page submissions that are judged on multiple dimensions.

- **Competitiveness**: The acceptance ratios of the top conferences have been less than 20% for many years, with the top two conferences ranging from 14% to 17%.
- **High Visibility**: The conferences have high visibility and attendance by both the academic and the industrial database community.

We classify below the conference and journal forums based on the criteria listed above.

**Database Systems Conferences: Tier A**

ACM SIGMOD, VLDB, ICDE, and EDBT are the well-established top four database systems conferences. The strength of their publications, with respect to selectivity/competitiveness, visibility, and refereeing standard, generally surpasses the two top database systems journals (ACM TODS and IEEE TKDE) and the comprehensiveness of their publications is comparable to the two top journals. Their acceptance ratios have consistently been less than 20% for the last four years and the program committees consist of the top researchers of the area.

SIGMOD and VLDB are considered as the top two, belonging to an “A1” tier, comparable to the ACM TODS journal. We mention the acceptance ratios in recent conferences where UCSD faculty members have published:

1. ACM SIGMOD (Special Interest Group on Management Of Data) Conference
   - Annual conference of the ACM SIGMOD community
   - Acceptance ratio in 2001: 44:293 (1:6.5)

2. VLDB (International Conference on Very Large Data Bases)
   - Annual conference

The following are considered to belong to an “A2” tier, comparable to the IEEE TKDE journal.

3. IEEE International Conference on Data Engineering (ICDE)
   - Annual conference
   - Acceptance ratio in 2002: 54:287 (1:5.3)

4. Extending Data Base Technology (EDBT) Conference
   - Biannual conference
   - Acceptance ratio in 2000: 30:187 (1:6.2)

**Database Systems Conferences: Tier B**

The second tier of database conferences consists of two categories:

1. A set of conferences oriented towards sub-areas of database systems. The high velocity of database research produces relatively quick ups-and-downs in the importance of such sub-area-oriented conferences. Indeed, specific workshops have been at periods very visible and competitive, only to fade in importance a few years later. The status of conferences in this category should therefore be revised at regular intervals (say, five years).
• The biannual Deductive and Object-Oriented Databases (DOOD) Conference was a narrow tier below EDBT and ICDE until 96, when it moved clearly into second class due to reduced interest in the topic.
• Entity Relationship (ER) Conference.
• Conference on Cooperative Information Systems (CoopIS).
• The WebDB workshop has recently emerged as the premier forum for preliminary works on databases and the World Wide Web. It is held along with the ACM SIGMOD conference, which provides high visibility, and its acceptance ratio is 1:3.5 (data point from 1999).
• The Database and Programming Languages (DBPL) Workshop had been a visible and competitive forum for work in the intersection of Databases and Programming Languages during the early part of the 90s.
• The Parallel and Distributed Information Systems (PDIS) Conference was between Tier A and Tier B but went defunct because of its narrow focus.
2. Conferences accepting any topic that the Top-4 accepts, but are less competitive.
• Conference on Information and Knowledge Management.

Database Systems Conferences and Workshops: Tier C
• Next Generation Information Technologies and Systems (NGITS) Workshop.
• Statistical and Scientific Database Management (SSDBM) Conference.
• Database Systems for Advanced Applications (DASFAA) Conference.
• Conference of Informations Systems and Management Of Data (CISMOD) Conference.
• Database and Expert Systems Applications (DEXA) Conference.
• International Conference on Applications of Databases (ADB) Conference.
• Workshop on Research Issues in Data Engineering (RIDE).
• Symposium on Spatial and Temporal Databases (SSTD).
• Workshop on Persistent Objects (POS).

A complete list of conferences and workshops in the area can be found at http://www.informatik.uni-trier.de/~ley/db/conf/indexa.html.

We have concluded that publications from conferences of the Top-4 and “Tier B” should be included in Section A of the academic review bibliography form, while “Tier C” publications are appropriate for Section B.

Conferences in Adjacent Areas
There are multiple areas that one can characterize as "adjacent to database research". We focus here on the ones that have been primarily frequented by database systems researchers recently.
• World Wide Web Conference, which should be classified as between the Tier A and Tier B of database conferences listed above.
• Joint Conference on Database Libraries (replaced ACM DL), which should be classified in the same rank with the Tier B conferences.
• Knowledge Discovery and Data Mining, which should be classified as between the Tier A and Tier B database conferences listed above.

• ACM SIGIR, probably between Tier A and Tier B, if not outright Tier A.

Database Systems Journals: Tier A
Database systems journals are, in general, less visible than corresponding database systems conferences and their impact on the area is often questionable, due largely to the reasons outlined by Patterson, Snyder, and Ullman. In particular,

• publications of the top database system conferences are sufficiently comprehensive in the treatment of their topics, and

• the construction and dissemination of software is a more effective way of communicating the overall effect and impact of one's work.

In general, one would rank the following as the top-2 journals in database systems

• ACM Transactions on Database Systems (TODS). Though its visibility, impact on systems research, and competitiveness is lower than that of SIGMOD and VLDB, it is the database forum with the lengthiest and most comprehensive treatments of its topics.

• IEEE Transactions on Knowledge and Data Engineering

• VLDB Journal

We classify ACM TODS in a Tier A1 and classify IEEE TKDE and VLDB Journal in a Tier A2.

In addition, the Journal of the ACM (the top journal in computer science as a whole) occasionally publishes database systems papers. However, this remains relatively rare, as most JACM publications are theoretical in nature.

Database Systems Journals: Tier B
Second tier database systems journals host publications of lower competitiveness, with the exception being their special issues where extended versions of the best publications of database conferences are invited. (One should note though that the Top-4 database systems conferences more often than not do not promote their best papers to special issues of database journals.)

• Distributed And Parallel Databases (DAPD)

• Journal of Intelligent Information Systems (JIIS)

• Data and Knowledge Engineering (DKE)

Database Systems Journals: Tier C
The following forums are characterized by quick turnaround but they either publish invited papers or their acceptance ratio is very high.

• IEEE Data Engineering Bulletin

• SIGMOD Record
Other Database Systems Journals

As is the case with conferences there is a large number of database systems journals of questionable impact to the database community. One can find the complete list at [http://www.informatik.uni-trier.de/~ley/db/conf/indexa.html](http://www.informatik.uni-trier.de/~ley/db/conf/indexa.html)

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<td>Tier B</td>
<td>DAPD, DKE, JIIS</td>
<td>CIKM, DOOD, ER, WEBDB, DBPL, CoopIS, VDB</td>
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<tr>
<td>Tier C</td>
<td>IEEE Data Engineering Bulletin, SIGMOD Record</td>
<td>ADB, CISMOD, DASFAA, DEXA, SSDBM, NGITS, RIDE, POS, SSTD</td>
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Journals of Adjacent Systems Areas

- Computer Networks: Between Tier A and Tier B.
- IEEE Transactions on Software Engineering: Tier A.
- ACM TOIS: Tier A
- ACM Transactions on Internet Technology (TOIT): Likely Tier A but we may need to wait for another year to make sure about its status.

Database Theory Area

As in the database systems area, the top database theory conferences provide highly competitive, visible forums for speedy dissemination of research results. Papers in such conferences are thoroughly refereed by program committees consisting of the best researchers in the field. However, in the database theory area the importance of journals is higher than in the database systems area. In general, conference papers provide initial results, while journals extend and complete them. These observations of Patterson, Snyder and Ullman apply to database theory:

“Theoreticians tend to conduct research that resembles mathematics. The phenomena are abstract, and the intellectual contribution is usually expressed in the form of theorems with proofs. Though conference publication is highly regarded in the theoretical community, there is a long tradition of completing, revising, and extending conference papers for submission and publication in archival journals.”

Database Theory Conferences

The Tier A database theory conferences are the following:

1. PODS (ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems)
• Annual conference, held jointly with the SIGMOD conference (see above)
  Typical acceptance rate: 25%

2. ICDT (International Conference on Database Theory)
  • Biannual conference
  • Typical acceptance rate: 30%

**Conferences of Adjacent Areas, Overlapping with Database Theory**
In addition, there is a well-established tradition of database theory papers being published in top conferences of adjacent areas overlapping with database theory, or in general computer science theory conferences, such as:

3. LICS (IEEE Symposium on Logic in Computer Science)
  • Top-rated annual conference on logical aspects of computer science
  • Typical acceptance rate: 30%

4. STOC (ACM Symposium on Theory of Computing)
  • Annual conference on computer science theory, among the top two in the field together with FOCS (below)
  • Typical acceptance rate: 45%

5. FOCS (IEEE Symposium on Foundations of Computer Science)
  • Annual conference on computer science theory, among the top two in the field together with STOC (above)
  • Typical acceptance rate: 35%

6. ICALP (International Colloquium on Automata, Languages, and Programming
  • Annual conference on computer science theory
  • Typical acceptance rate: 40%

7. Computational Complexity (IEEE Conference on Computational Complexity, formerly Structure in Complexity Theory Conference)
  • Annual conference on complexity theory
  • Typical acceptance rate: 40%

8. CSL (Conference of the European Association for Computer Science Logic)
  • Annual conference
  • Typical acceptance rate: 35%

9. MFCS (Mathematical Foundations of Computer Science)
  • Annual conference on computer science theory
  • Typical acceptance rate: 50%

We note that acceptance rates in the top theory conferences are typically higher than those in the top systems conferences. This is due to the generally high quality of submissions to theory conferences, due in part to self-selection exercised to a larger
extent by authors in the theory communities. In summary all of the above are classified as Tier A forums.

**Database Theory Journals**

Database theory journal articles are occasionally published in the database systems journals mentioned earlier. However, the typical venues of journal publications are the general computer science journals, and occasionally journals from areas adjacent to databases. We list below the main venues for journal publication in database theory, in rough order of their ranking:

1. JACM (Journal of the Association for Computing Machinery). This is the top-rated journal in computer science as a whole.

2. JCSS (Journal of Computer and Systems Science)
3. Information and Computation
4. TCS (Theoretical Computer Science)
5. SIAM Journal on Computing
6. Annals of Mathematics and Artificial Intelligence
7. TOCL (ACM Transactions on Computational Logic)
8. JLP (Journal of Logic Programming)

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**Note on invited articles**

Unlike the database systems conferences, the top database theory conferences have developed a tradition of arranging the publication of special issues of journals containing the full versions of the top-rated papers from each conference. Submission of such papers is by invitation, and the papers are subsequently refereed according to the usual standards of the journal. Thus, the fact that a conference paper is invited to the corresponding special issue of a journal is an indication of a particularly high-quality paper, generally rated within the top 5-8 articles of the conference. Traditionally, PODS publishes its special issue in JCSS and the ICDT special issue appears in TCS. Note that JACM does not publish special issues.