VLDB Journal

The International Journal on Very Large Data Bases

Volume 1 (1992)

The **VLDB** Journal

The International Journal on Very Large Data Bases

Editors-in-Chief

Fred J. Maryanski Storrs, CT, USA Hans-J. Schek Zürich, Switzerland

Editorial Board

Serge Abiteboul
Peter Buneman
Georges Gardarin
Hans-Detlef Gerhardt
Kuan-Tsae Huang
Masaru Kitsuregawa
Dennis McLeod
Antoni Olivé
K. Ramamohanarao
Peter Scheuerman
Kenneth Sevcik
Yannis Vassiliou
Stanley Zdonik

Michel Adiba
Walter A. Burkhard
Steven A. Demurjian
Georg Gottlob
Tadao Ichikawa
Tosiyasu L. Kunii
Robert A. Meersman
Alain Pirotte
Andreas Reuter
Gunter Schlageter
Arne Solvberg
Kyu-Young Whang

Antonio Albano George Copeland Hector Garcia-Molina Peter Gray Roger King Michel Léonard John Mylopoulos F.J. Radermacher Ron Sacks-Davis Joachim W. Schmidt David Stemple Hartmut Wedekind

Publication Board

Arie Shoshani (Chair) Thomas Wu Fred J. Maryanski

Hans-J. Schek Michael Rys



Volume 1 (1992)

THE BOXWOOD PRESS PACIFIC GROVE, CA, USA

© 1992 BY THE VLDB ENDOWMENT

Copyright reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.

Submission of a paper to *The VLDB Journal* is understood to imply that it is not being considered for publication elsewhere and that the author's permission to publish his/her article(s) in this journal implies the exclusive authorization of the publisher to deal with all issues concerning the copyright therein.

Submission of multi-authored manuscripts to this journal implies the consent of each of the authors. The publisher will assume that the senior or corresponding author has specifically obtained the approval of all other co-authors to submit the manuscript to this journal.

No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein.

Special regulations for authors. Upon acceptance of an article by the journal, the author(s) will be asked to transfer copyright of the article to the publisher. This transfer will ensure the widest possible dissemination of information.

Published quarterly by:

THE BOXWOOD PRESS

183 Ocean View Blvd.
Pacific Grove, CA 93950, USA
Telephone: (408) 375-9110/Fax: (408) 375-0430

FOREWORD

The International Journal on Very Large Data Bases (*VLDB Journal*) was chartered by the VLDB Endowment to respond to a demand in the database community for an archival publication exclusively devoted to all aspects of databases with particular emphasis on systems. The establishment of the Journal will increase scholarship on the subject of databases by providing an outlet for the publication of leading-edge research results and creating a repository for future researchers. A journal with a systems focus also will serve the database practitioner who requires access to information that can be applied to the solution of practical problems. By creating an opportunity for database systems researchers to chronicle their accomplishments, the *VLDB Journal* will contribute to the development of the future generations of database systems.

The editorial processes of the Journal are designed to provide a thorough, professional review of each submission in a timely fashion while maintaining high scientific standards. Each paper undergoes a thorough professional review organized by a member of the editorial board. The published papers contain the name of the responsible editor. Names of referees remain strictly anonymous. The Editors-in-Chief maintain responsibility for coordination of the activities of the editors and ensuring consistency of standards.

This first issue of the VLDB Journal is dedicated to the topic of "Federated Databases." In the future, the Journal occasionally will devote an entire issue to a specific topic of current significance with the responsibility assigned to an invited editor to write an invited survey paper on the topic. Papers for a special issue are solicited via a public call for papers. The Journal's standards for publication are applied uniformly for regular and special issues.

The VLDB Journal will not contain papers previously published at conferences. However, authors of outstanding papers from selected conferences may be encouraged to submit significantly extended versions for review for publication in the Journal.

In addition to technical excellence, the *VLDB Journal* also has the goals of affordable price and timeliness. An affordable journal, available to individual researchers and practitioners all over the world, results from low overhead due to volunteer work. Minimizing the publication backlog, the time between acceptance and publication, will guarantee timeliness. Profits from the Journal will fund additional pages per issue and extra issues, as necessary.

The Publication Board members (see inside front cover), in particular, have played a major role in the creation and production of the Journal. It is our sincere pleasure to thank Arie Shoshani (Publications Board chairman) and David Hsiao (past chairman) for their cooperation. Without their leadership, the Journal would not exist. Michael Rys did an outstanding job in developing the cover design using the ideas and input of many people. Thomas Wu has played an important role as the interface to the publisher. We thank the staff of the Boxwood Press for their skill in assembling the work.

The Journal's layout, cover, and structure are important. However, of primary importance is the content and quality of every paper. The ultimate responsibility for maintaining the high standards of the *VLDB Journal* lies with you, the future authors. We look forward to your submissions to the Journal.

Fred Maryanski Hans Schek Editors-in-Chief



CALL FOR ATTENDANCE

18th International Conference on **Very Large Data Bases** August 23-27, 1992

Hyatt Regency, Vancouver, British Columbia

SPONSORS

VLDB Endowment

CIPS

In Co-operation with IEEE and ACM

IBM Canada

Oracle Corporation Canada, Inc.

Teradata

TECHNICAL PROGRAM HIGHLIGHTS

The Conference includes 45 technical papers covering topics such as advanced database applications, multimedia and temporal databases, object-oriented, deductive and semantic databases, database machines, parallel and distributed database systems, heterogeneous and multidatabases, database design and performance issues, transaction processing, theory of databases, and database integrity and security. In addition, there will be six half-day tutorials given by internationally known experts -

- Object-Oriented Database Systems, Patrick Valduriez, INRIA
- Spatial Databases, Hanan Samet, University of Maryland
- Database Tuning, Dennis Shasha, New York University and Steve Rozen, Software Options, Inc.
- Software Repositories, John Mylopoulos and Thomas Rose, University of Toronto
- Multidatabase Applications: Semantic and System Issues, Marek E. Rusinkiewicz, University of Houston and Amit P. Sheth, Bellcore
- Data Management for Real-Time Systems, Alejandro Buchmann, TH Darmstadt.

CONFERENCE VENUE AND HOTEL REGISTRATION

The conference will be held at the luxurious Hyatt Regency, located in the heart of Vancouver's business, shopping, cultural and entertainment districts. The hotel features award-winning restaurants, shops, heated outdoor pool and health club and is approximately 30 minutes from the airport. Mention you're attending VLBD '92 to receive the special conference rate of Canadian \$155 (single); Canadian \$175 (double) + 10% hotel tax + 7% Goods and Services Tax. To make reservations, contact the hotel directly at (604) 687-6543; Toll-free (North America) 1-800-233-1234; Fax (604) 689-3707; Telex 04-55475 or write to Hyatt Regency, 655 Burrard Street, Vancouver, B.C. V6C 2R7. Reserve before July 23.

PROGRAM & EXHIBITS CHAIRS

General Conference Chair

Paul Sorenson,

University of Alberta, Canada sorenson@cs.ualberta.ca

General Program Chair

Stavros Christodoulakis, Technical University of Crete, Greece stavros@ced.tuc.gr

American Program Chair

Alberto Mendelzon, University of Toronto, Canada mendel@db.toronto.edu

European Program Chair

Erich J. Neuhold, IPSI, Germany neuhold@darmstadt.gmd.de

Far East (Asia and Australia) Program Chair

Yahiko Kambayashi, Kyoto University, Japan yahiko@kuis.kyoto-u.ac.jp

Exhibits Chair

Lougenia Anderson. Sequent Computer Systems, U.S.A. Lougie@sequent.com

FOR MORE INFORMATION

· On exhibits, program, etc., contact appropriate chairs

Full Fee

 On registration, contact the conference secretariat: VLDB '92, Conference Services, Halpern Centre, Simon Fraser University Burnaby, British Columbia, Canada V5A 1S6

Telephone (604) 291-4910 or 291-3649 Fax (604) 291-3420

e-mail: Conference_Services@sfu.ca

VLDB '92 CONFERENCE REGISTRATION

Note that early registration deadline is June 15. Registration fee (inclusive of G.S.T.) SFU GST #118520725

	(before June 15) Cdn\$) (after June 15) Cdn\$	
General registration	399.00	455.00	\$
Student registration	175.00	200.00	\$
Extra Banquet Tickets (not included in Student Fee)	50.00	50.00	\$
Harbour Cruise (Optional)	45.00	45.00	\$
Total payment is enclosed: Cdn \$		Cheque (payable to Simon Fr	aser University)
		Credit Card (Only VISA or Ma	stercard)
Card number	Expiry date		
Issue date (MasterCard)	Signature		
Name	Department		
Institution	Address		
City Province or State_			
TelephoneFax		E-mail	

Early Birds

Note: University Students need a letter of verification from their department chair

Return to: VLDB '92, Conference Services, Simon Fraser University, Burnaby, B.C., V5A 1S6 CANADA