

Preface

This volume provides a comprehensive, state-of-the-art survey of conceptual modeling. It includes invited papers, research papers, and abstracts of industrial presentations given at ER2000, the 19th International Conference on Conceptual Modeling, held in Salt Lake City, Utah. Continuing in its long tradition of attracting the leading researchers and practitioners in advanced information systems design and implementation, the conference provided a forum for presenting and discussing current research and applications in which the major emphasis was on conceptual modeling. The conference topics reflected this strong conceptual-modeling theme while recognizing important, emerging developments resulting from recent technological advances.

The call for papers for the research track resulted in the submission of 140 papers from researchers around the world. Of these, 37 were selected for inclusion in the program. The authors of these papers are from 14 countries. These papers represent a variety of topics including:

- Database Integration
- Temporal and Active Database Modeling
- Database and Data Warehouse Design Techniques
- Analysis Patterns and Ontologies
- Web-based Information Systems
- Business Process Modeling
- Conceptual Modeling and XML
- Engineering and Multimedia Application Modeling
- Object-Oriented Modeling
- Applying Object-Oriented Technology
- Quality in Conceptual Modeling
- Application Design Using UML

Three internationally recognized scholars in the area of conceptual modeling also submitted papers and delivered keynote speeches:

- John Mylopoulos: *From Entities and Relationships to Social Actors and Dependencies*
- Salvatore T. March: *Reflections on Computer Science and Information Systems Research*
- Philip A. Bernstein: *Generic Model Management—Why We Need It and How to Get There*

In addition to the research papers and invited papers, the conference included two workshops, two pre-conference full-day tutorials, four short tutorials, four industrial sessions, and two provocative panel discussions. The workshops addressed emerging topics in conceptual-modeling research. One workshop

was entitled “Conceptual Modeling Approaches for E-Business (eCOMO2000),” and the other was entitled “The World Wide Web and Conceptual Modeling (WCM2000).” The pre-conference tutorials allowed participants to be taught the latest information about using conceptual-modeling techniques to do software development using UML and to do Internet site development using co-design. Scott N. Woodfield taught the UML software development tutorial, while Bernhard Thalheim and Klaus-Dieter Schewe taught the Internet site development tutorial. Short tutorials were taught by Avigdor Gal on utilizing ontologies in e-commerce, by Uma Srinivasan and John R. Smith on conceptual modeling for multimedia applications, by Il-Yeol Song on logical design for data warehousing, and by Benkt Wangler and Paul Johanneson on application and process integration. The industrial sessions were largely sponsored in conjunction with DAMA International and addressed pertinent issues relating to the application of conceptual modeling to solving real-world problems.

Authors who submitted their work and the program committee members and additional reviewers who carefully reviewed the papers and provided their professional assessments deserve appreciation and recognition. A number of the program committee members participated in a rather lengthy virtual meeting to finalize the paper selection and diligently reviewed additional papers on demand, all in an effort to create the best program possible. The PC chairs, Alberto H.F. Laender and Veda C. Storey, labored diligently to provide the best possible research program for ER2000. This volume is a tribute to their efforts. Stephen W. Liddle deserves special thanks for creating the Web-based conference management software that enabled the online submission of papers and reviews, and that made the virtual PC meeting possible. He also worked closely with the PC chairs to manage the review process and assemble the conference proceedings.

Many others deserve appreciation and recognition. The steering committee and conference chair provided advice and vision. Bernhard Thalheim directed the search for timely workshops. Selected workshops were chaired by Heinrich C. Mayr (eCOMO2000) and Stephen W. Liddle (WCM2000) who both worked tirelessly with their program committees to obtain good papers for their respective workshops. (A companion volume, LNCS 1921, contains these papers.) Ling Liu enticed 15 submissions for short tutorials and then had to make hard decisions to cut this list of submissions to the four accepted for the conference. Terry Halpin worked diligently as industrial chair, eventually joining forces with Davida Berger, Vice President of Conference Services for DAMA International, to jointly come up with an outstanding industrial track. Il-Yeol Song continuously provided publicity for the conference; John F. Roddick worked on panels; Scott N. Woodfield handled local arrangements, and Stephen W. Liddle kept the Web pages up to date and artistically presentable. Dennis Ng (registration), Douglas M. Campbell (socials), Dan Johnson and Jennifer Shadel (treasurers), and several BYU students also helped make the conference a success.

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Veda C. Storey, Georgia State University, USA

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John F. Roddick, Flinders University of South Australia, Australia

DAMA International Liaison

Davida Berger, Roche Labs Inc., USA

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 Sumit Sarkar, University of Texas at Dallas, USA
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 Vijayan Sugumaran, Oakland University, USA
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 Toby Teorey, University of Michigan, USA
 Bernhard Thalheim, Brandenburg Technical University at Cottbus, Germany
 Olga De Troyer, Tilburg University, The Netherlands
 Kyu-Young Whang, KAIST, Korea
 Michael Williams, Manchester Metropolitan University, UK

External Referees

Stephen Arnold	Mihhail Matskin
Maria Bergholtz	Giansalvatore Mecca
Stephane Bressan	Paolo Merialdo
Diego Calvanese	Sophie Monties
Cecil Eng Huang Chua	Luciana Porcher Nedel
Angelo E. M. Ciarlini	Sanghyun Park
Robert M. Colomb	Ilias Petrounias
Gillian Dobbie	Alysson Bolognesi Prado
Laurent Ferier	Torsten Priebe
Thomas Feyer	Ivan Radev
Renato Fileto	Srinivasan Raghunathan
Rakesh Gupta	Wasim Sadiq
Hyoil Han	Giuseppe Santucci
Gaby Herrmann	Klaus-Dieter Schewe
Patrick Heymans	T. Schlichting
Ryosuke Hotaka	Joachim W. Schmidt
David Johnson	Junho Shim
Masayuki Kameda	Isamu Shioya
Gilbert Karuga	Roderick Son
Hirofumi Katsuno	Eng Koon Sze
Hiroyuki Kitagawa	Hideyuki Takada
Birgitta Koenig-Ries	Hiroki Takakura
Takeo Kunishima	Babis Theodoulidis
Dongwon Lee	Hallvard Traetteberg
Joseph Lee	Meng-Feng Tsai
Weifa Liang	Vassilios S. Verykios
Victor Liu	Bing Wu
Wenlei Mao	Yusuke Yokota

Tutorials

The Unified Modeling Language

Scott N. Woodfield, Brigham Young University, USA

Conceptual Modeling of Internet Sites

Bernhard Thalheim, Brandenburg Univ. of Technology at Cottbus, Germany
Klaus-Dieter Schewe, Massey University, New Zealand

Utilizing Ontologies in eCommerce

Avigdor Gal, Rutgers University, USA

Conceptual Modeling for Multimedia Applications and the Role of MPEG-7 Standards

Uma Srinivasan, CSIRO Mathematical and Information Sciences, Australia
John R. Smith, IBM T.J. Watson Research Center, USA

Logical Design for Data Warehousing

Il-Yeol Song, Drexel University, USA

Application and Process Integration

Benkt Wangler, University of Skövde, Sweden
Paul Johannesson, Stockholm University, Sweden

Workshops

eCOMO2000

International Workshop on Conceptual Modeling Approaches for E-Business
Chair: Heinrich C. Mayr, University of Klagenfurt, Austria

WCM2000

2nd International Workshop on the World Wide Web and Conceptual Modeling
Chair: Stephen W. Liddle, Brigham Young University, USA

See *LNCS* vol. 1921 for the workshop proceedings.