

# Foreword

The objective of the workshops associated with the ER'99 18th International Conference on Conceptual Modeling is to give participants access to high level presentations on specialized, hot, or emerging scientific topics. Three themes have been selected in this respect:

- Evolution and Change in Data Management (ECDM'99) dealing with handling the evolution of data and data structure,
- Reverse Engineering in Information Systems (REIS'99) aimed at exploring the issues raised by legacy systems,
- The World Wide Web and Conceptual Modeling (WWWCM'99) which analyzes the mutual contribution of WWW resources and techniques with conceptual modeling.

ER'99 has been organized so that there is no overlap between conference sessions and the workshops. Therefore participants can follow both the conference and the workshop presentations they are interested in.

I would like to thank the ER'99 program co-chairs, Jacky Akoka and Mokrane Bouzeghoub for having given me the opportunity to organize these workshops. I would also like to thank Stephen Liddle for his valuable help in managing the evaluation procedure for submitted papers and helping to prepare the workshop proceedings for publication.

August 1999

Jacques Kouloundjian

## Preface for ECDM'99

The first part of this volume contains the proceedings of the First International Workshop on Evolution and Change in Data Management, ECDM'99, which was held in conjunction with the 18th International Conference on Conceptual Modeling (ER'99) in Paris, France, November 15–18, 1999.

The management of evolution and change and the ability of data, information, and knowledge-based systems to deal with change is an essential component in developing truly useful systems. Many approaches to handling evolution and change have been proposed in various areas of data management and ECDM'99 has been successful in bringing together researchers from both more established areas and from emerging areas to look at this issue. This workshop dealt with the modeling of changing data, the manner in which change can be handled, and the semantics of evolving data and data structure in computer based systems.

Following the acceptance of the idea of the workshop by the ER'99 committee, an international and highly qualified program committee was assembled from research centers worldwide. As a result of the call for papers, the program committee received 19 submissions from 17 countries and after rigorous refereeing 11 high quality papers were eventually chosen for presentation at the workshop which appear in these proceedings.

I would like to thank both the program committee members and the additional external referees for their timely expertise in reviewing the papers. I would also like to thank the ER'99 organizing committee for their support, and in particular Jacques Kouloumdjian, Mokrane Bouzeghoub, Jacky Akoka, and Stephen Liddle.

August 1999

John F. Roddick

## Preface for REIS'99

Reverse Engineering in Information Systems (in its broader sense) is receiving an increasing amount of interest from researchers and practitioners. This is not only the effect of some critical dates such as the year 2000. It derives simply from the fact that there is an ever-growing number of systems that need to be evolved in many different respects, and it is always a difficult task to handle this evolution properly. One of the main problems is gathering information on old, poorly documented systems prior to developing a new system. This analysis stage is crucial and may involve different approaches such as software and data analysis, data mining, statistical techniques, etc.

An international program committee has been formed which I would like to thank for its timely and high quality evaluation of the submitted papers.

The workshop has been organized in two sessions:

1. *Methodologies for Reverse Engineering*. The techniques presented in this session are essentially aimed at obtaining information on data for finding data structures, eliciting generalization hierarchies, or documenting the system, the objective being to be able to build a high-level schema on data.
2. *System Migration*. This session deals with the problems encountered when migrating a system into a new environment (for example changing its data model). One point which has not been explored much is the forecasting of the performance of a new system which is essential for mission-critical systems.

I do hope that these sessions will raise fruitful discussions and exchanges.

August 1999

Jacques Kouloumdjian

## Preface for WWWCM'99

The purpose of the International Workshop on the World Wide Web and Conceptual Modeling (WWWCM'99) is to explore ways conceptual modeling can contribute to the state of the art in Web development, management, and use. We are pleased with the interest in WWWCM'99. Thirty-six papers were submitted (one was withdrawn) and we accepted twelve. We express our gratitude to the authors and our program committee, who labored diligently to make the workshop program possible. The papers are organized into four sessions:

1. *Modeling Navigation and Interaction.* These papers discuss modeling interactive Web sites, augmentations beyond traditional modeling, and scenario modeling for rapid prototyping as alternative ways to improve Web navigation and interaction.
2. *Directions in Web Modeling.* The papers in this session describe three directions to consider: (1) modeling superimposed information, (2) formalization of Web-application specifications, and (3) modeling by patterns.
3. *Modeling Web Information.* These papers propose a conceptual-modeling approach to mediation, semantic access, and knowledge discovery as ways to improve our ability to locate and use information from the Web.
4. *Modeling Web Applications.* The papers in this session discuss how conceptual modeling can help us improve Web applications to do this. The particular applications addressed are knowledge organization, Web-based teaching material, and data warehouses in e-commerce.

It is our hope that this workshop will attune developers and users to the benefits of using conceptual modeling to improve the Web and the experience of Web users.

August 1999

Peter P. Chen, David W. Embley, and Stephen W. Liddle

WWWCM'99 Web Site: [www.cm99.byu.edu](http://www.cm99.byu.edu)

## Workshop Organizers

ER'99 Workshops Chair: Jacques Kouloumdjian (INSA de Lyon, France)  
 ECDM'99 Chair: John F. Roddick (Univ. of So. Australia, Australia)  
 REIS'99 Chair: Jacques Kouloumdjian (INSA de Lyon, France)  
 WWWCM'99 Co-Chair: Peter P. Chen (Louisiana State Univ., USA)  
 WWWCM'99 Co-Chair: David W. Embley (Brigham Young Univ., USA)  
 WWWCM'99 Prog. Chair: Stephen W. Liddle (Brigham Young Univ., USA)

## ECDM'99 Program Committee

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## WWWCM'99 Program Committee

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## External Referees for All ER'99 Workshops

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John M. DuBois	Patrick Marcel	Srinath Srinivasa
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Advances in Conceptual Modeling

ER'99 Workshops on Evolution and Change in Data  
Management, Reverse Engineering in Information  
Systems, and the World Wide Web and Conceptual  
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