

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

New York University, NY, USA

Doug Tygar

University of California, Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Springer

Berlin

Heidelberg

New York

Hong Kong

London

Milan

Paris

Tokyo

David L. Hicks (Ed.)

Metainformatics

International Symposium, MIS 2003
Graz, Austria, September 17-20, 2003
Revised Papers



Springer

Volume Editor

David L. Hicks
Aalborg University Esbjerg
Department of Software and Media Technology
Niels Bohrs Vej 8, 6700 Esbjerg, Denmark
E-mail: hicks@cs.aue.auc.dk

Library of Congress Control Number: 2004104702

CR Subject Classification (1998): H.4, H.5.1, D.2, H.5.4, D.1, I.2, K.4, I.7

ISSN 0302-9743

ISBN 3-540-22010-0 Springer-Verlag Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable to prosecution under the German Copyright Law.

Springer-Verlag is a part of Springer Science+Business Media

springeronline.com

© Springer-Verlag Berlin Heidelberg 2004
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Olgun Computergrafik
Printed on acid-free paper SPIN: 11008378 06/3142 5 4 3 2 1 0

Preface

This volume contains the final proceedings of the MetaInformatics Symposium 2003 (MIS 2003). The event was held September 17–20 on the campus of the Graz University of Technology in Graz, Austria.

As with previous events in the MIS series, MIS 2003 brought together researchers and practitioners from a wide variety of fields to discuss a broad range of topics and ideas related to the field of computer science. The contributions that were accepted to and presented at the symposium are of a wide variety. They range from theoretical considerations of important metainformatics-related questions and issues to practical descriptions of approaches and systems that offer assistance in their resolution. I hope you will find the papers contained in this volume as interesting as the other members of the program committee and I have.

These proceedings would not have been possible without the help and assistance of many people. In particular I would like to acknowledge the assistance of Springer-Verlag in Heidelberg, Germany, especially Anna Kramer, the computer science editor, and Alfred Hofmann, the executive editor for the LNCS series.

February 2004

David L. Hicks

Organization

Organizing Committee

Uffe K. Wiil (Aalborg University Esbjerg, Denmark)
David L. Hicks (Aalborg University Esbjerg, Denmark)
Peter J. Nürnberg (Technical University Graz, Austria)

Conference Secretary

Mathias Lux (Know-Center, Austria)

Program Committee

Chair	David L. Hicks (Aalborg University Esbjerg, Denmark)
Members	Darren Dalcher (Middlesex University, London, UK) David Millard (University of Southampton, UK) Peter J. Nürnberg (Technical University Graz, Austria) Siegfried Reich (Salzburg Research, Austria) Jessica Rubart (FhG-IPSI, Darmstadt, Germany) Klaus Tochtermann (Know-Center, Graz, Austria) Manolis Tzagarakis (University of Patras, Greece) Weigang Wang (FhG-IPSI, Darmstadt, Germany) Jim Whitehead (University of California, Santa Cruz, USA) Uffe K. Wiil (Aalborg University Esbjerg, Denmark)

Sponsoring Institutions

Technische Universität Graz, Austria

Styrian Competence Center for Knowledge Management (Know-Center), Austria

Aalborg University Esbjerg, Denmark

Table of Contents

A Grand Unified Theory for Structural Computing	1
<i>Peter J. Nürnberg, Uffe K. Wiil, and David L. Hicks</i>	
A Meta-modeling Approach to Ontological Engineering: DL-Workbench Platform	17
<i>Mikhail Kazakov and Habib Abdulrab</i>	
Context Modeling for Software Design	34
<i>Tobias Berka</i>	
On the Foundations of Computing Science	46
<i>Ulisses Ferreira</i>	
Toward a Structure Domain Interoperability Space	66
<i>Claus Atzenbeck, Uffe K. Wiil, and David L. Hicks</i>	
An Efficient E-mail Monitoring System for Detecting Proprietary Information Outflow Using Broad Concept Learning	72
<i>Byungyeon Hwang and Bogju Lee</i>	
Interface Design – Use of Audio as an Output	79
<i>Kirstin Lyon and Peter J. Nürnberg</i>	
Developer Support in Open Hypermedia Systems: Towards a Hypermedia Service Discovery Mechanism	89
<i>Nikos Karousos and Ippokratis Pandis</i>	
A Structural Computing Model for Dynamic Service-Based Systems	100
<i>Peter King, Marc Nanard, Jocelyne Nanard, and Gustavo Rossi</i>	
Structuring Cooperative Spaces: From Static Templates to Self-Organization	119
<i>Jessica Rubart and Thorsten Hampel</i>	
Dynamic Personalization in Knowledge-Based Systems from a Structural Viewpoint	126
<i>Armin Ulbrich, Dolly Kandpal, and Klaus Tochtermann</i>	
Some Notes on Behavior in Structural Computing	143
<i>Michalis Vaitis, Manolis Tzagarakis, Konstantinos Grivas, and Eleftherios Chrysochoos</i>	

Strategies for Hypermedia Design Modeling 150
Ahmet Sıkıcı and N. Yasemin Topaloğlu

The EXTERNAL Experience on System and Enterprise Integration 158
*Weigang Wang, Frank Lillehagen, Dag Karlsen, Svein G. Johnsen,
John Krogstie, Jessica Rubart, and Jörg M. Haake*

Interaction with Information Technology Seen as Communication 175
Frank Wagner

Meta-analysis and Reflection as System Development Strategies..... 178
Christopher Landauer and Kirstie L. Bellman

A Dynamic Aspect Weaver over the .NET Platform 197
Luis Vinuesa and Francisco Ortin

Author Index 213