

# Contents

On Unifying Relational and Object-Oriented Database Systems .....	1
<i>Invited paper, Won Kim (UniSQL, Austin Texas)</i>	
Import Is not Inheritance - Why We Need Both: Modules and Classes .....	19
<i>Clemens A. Szyperski (ETH Zürich)</i>	
Object-Oriented Multi-Methods in Cecil .....	33
<i>Craig Chambers (University of Washington, Seattle)</i>	
Aggregation in a Behaviour Oriented Object Model .....	57
<i>Thorsten Hartmann, Ralf Jungclaus, Gunter Saake (Technische Universität Braunschweig)</i>	
Reasoning and Refinement in Object-Oriented Specification Languages .....	78
<i>K. Lano (Oxford University), H. Haughton (Lloyds Register of Shipping, Croydon)</i>	
Combining Object-Oriented and Logic Paradigms: A Modal Logic Programming Approach .....	98
<i>Tarmo Uustalu (Estonian Academy of Sciences, Tallinn)</i>	
An Incremental Class Reorganization Approach .....	114
<i>Eduardo Casais (Forschungszentrum Informatik, Karlsruhe)</i>	
System Design by Composing Structures of Interacting Objects .....	133
<i>Egil P. Andersen and Trygve Reenskaug (University of Oslo)</i>	
Unifying the Design and Implementation of User Interfaces Through the Object Paradigm .....	153
<i>Véronique Normand (Bull-IMAG Systèmes, Gières), Joëlle Coutaz (Laboratoire de Génie Informatique, Grenoble)</i>	
Nesting Actions Through Asynchronous Message Passing: The ACS Protocol .	170
<i>Rachid Guerraoui, Riccardo Capobianchi, Agnes Lanusse, Pierre Rouz (CE Saclay DEIN/SIR, Gif sur Yvette)</i>	
Inheritance of Synchronization Constraints in Concurrent Object-Oriented Programming Languages .....	185
<i>Svend Frølund (University of Illinois, Urbana)</i>	
EPEE: an Eiffel Environment to Program Distributed Memory Parallel Computers .....	197
<i>J.M. Jézéquel (IRISA, Rennes)</i>	

Using Object-Oriented Programming Techniques for Implementing ISDN Supplementary Services .....	213
<i>Bent Gabelgaard (Dansk MobilTelefon, Aalborg)</i>	
An Object Model for Engineering Design .....	233
<i>G.T. Nguyen, D. Rieu, J. Escamilla (IRIMAG, Grenoble)</i>	
An Object-Oriented Class Library for Scalable Parallel Heuristic Search .....	252
<i>Wing-cheong Lau (University of Texas, Austin), Vineet Singh (Hewlett-Packard Labs, Palo Alto)</i>	
Integrating Constraints with an Object-Oriented Language .....	268
<i>Bjorn N. Freeman-Benson (University of Victoria), Alan Borning (University of Washington)</i>	
Specifying Reusable Components Using Contracts .....	287
<i>Ian M. Holland (Northeastern University, Boston)</i>	
ACTS: A Type System for Object-Oriented Programming Based on Abstract and Concrete Classes .....	309
<i>Mahesh Dodani, Chung-Shin Tsai (University of Iowa)</i>	
Making Type Inference Practical .....	329
<i>Nicholas Orhøj, Jens Palsberg, Michael I. Schwartzbach (Aarhus University)</i>	
A Reflective Model of Inheritance .....	350
<i>Suresh Jagannathan (NEC Research Institute, Princeton), Gul Agha (University of Illinois, Urbana)</i>	
An Object-Oriented Language-Database Integration Model: The Composition-Filters Approach .....	372
<i>Mehmet Akşit, Lodewijk Bergmans, Sinan Vural (University of Twente)</i>	
Supporting Physical Independence in an Object Database Server .....	396
<i>Nicola Aloia (CNUCE-CNR, Pisa), Svetlana Barneva, Fausto Rabitti (IEI-CNR, Pisa)</i>	
Developing a Class Hierarchy for Object-Oriented Transaction Processing ....	413
<i>Daniel L. McCue (University of Newcastle upon Tyne)</i>	