

# Table of Contents

## **I. The 8th Workshop for PhD Students in Object-Oriented Systems**

<b><i>Erik Ernst, Frank Gerhardt, Luigi Benedicenti</i></b>	<b>1</b>
Framework Design and Documentation <i>Ákos Frohner</i> .....	5
Reengineering with the CORBA Meta Object Facility <i>Frank Gerhardt</i> .....	6
Enforcing Effective Hard Real-Time Constraints in Object-Oriented Control Systems <i>Patrik Persson</i> .....	7
Online-Monitoring in Distributed Object-Oriented Client/Server Environments <i>Günther Rackl</i> .....	8
A Test Bench for Software <i>Moritz Schnizler</i> .....	9
Intermodular Slicing of Object-Oriented Programs <i>Christoph Steindl</i> .....	10
Validation of Real-Time Object Oriented Applications <i>Sebastien Gerard</i> .....	14
Parallel Programs Implementing Abstract Data Type Operations --- A Case Study <i>Tamás Kozsik</i> .....	15
A Dynamic Logic Model for the Formal Foundation of Object-Oriented Analysis and Design <i>Claudia Pons</i> .....	16
A Refinement Approach to Object-Oriented Component Reuse <i>Winnie Qiu</i> .....	17
A Compositional Approach to Concurrent Object Systems <i>Xiaogang Zhang</i> .....	18
Component-Based Architectures to Generate Software Components from OO Conceptual Models <i>Jaime Gomez</i> .....	21
Oberon-D -- Adding Database Functionality to an Object-Oriented Development Environment <i>Markus Knasmüller</i> .....	22
Run-time Reusability in Object-Oriented Schematic Capture <i>David Parsons</i> .....	23
SADES - a Semi-Autonomous Database Evolution System <i>Awais Rashid</i> .....	24

Framework Design for Optimization (as Applied to Object-Oriented Middleware) <i>Ashish Singhai</i> .....	25
Object-Oriented Control Systems on Standard Hardware <i>Andreas Speck</i> .....	26
Design of an Object-Oriented Scientific Simulation and Visualization System <i>Alexandru Telea</i> .....	26
Testing Components Using Protocols <i>Il-Hyung Cho</i> .....	29
Virtual Types, Propagating and Dynamic Inheritance, and Coarse Grained Structural Equivalence <i>Erik Ernst</i> .....	30
On Polymorphic Type Systems for Imperative Programming Languages: An Approach using Sets of Types and Subprograms <i>Bernd Holzmüller</i> .....	31
Formal Methods for Component-Based Systems <i>Rosziati Ibrahim</i> .....	32
Compilation of Source Code into Object-Oriented Patterns <i>David H. Lorenz</i> .....	32
Integration of Object-Based Knowledge Representation in a Reflexive Object- Oriented Language <i>Gabriel Pavillet</i> .....	33
Implementing Layered Object-Oriented Designs <i>Yannis Smaragdakis</i> .....	34
An Evaluation of the Benefits of Object Oriented Methods in Software Development Processes <i>Pentti Virtanen</i> .....	35
Process Measuring, Modeling, and Understanding <i>Luigi Benedicenti</i> .....	37
The Contextual Objects Modeling for a Reactive Information System <i>Birol Berkem</i> .....	38
Experiences in Designing a Spatio-temporal Information System for Marine Coastal Environments Using Object Technology <i>Anita Jacob</i> .....	39
Facilitating Design Reuse in Object-Oriented Systems Using Design Patterns <i>Hyoseob Kim</i> .....	39
A Reverse Engineering Methodology for Object-Oriented Systems <i>Theodoros Lantzoz</i> .....	40

The Reliability of Object-Oriented Software Systems <i>Jan Sabak</i> .....	41
Extending Object-Oriented Development Methodologies to Support Distributed Object Computing <i>Umit Uzun</i> .....	42
<b>II. Techniques, Tools and Formalisms for Capturing and Assessing the Architectural Quality in Object-Oriented Software</b> <b><i>Isabelle Borne, Fernando Brito e Abreu, Wolfgang De Meuter, Galal Hassan Galal</i></b> .....	<b>44</b>
A Note on Object-Oriented Software Architecting <i>Galal Hassan Galal</i> .....	46
COMPARE: A Comprehensive Framework for Architecture Evaluation <i>Lionel C. Briand, S. Jeromy Carrière, Rick Kazman, Jürgen Wüst</i> .....	48
Experience with the Architecture Quality Assessment of a Rule-Based Object- Oriented System <i>Jeff L. Burgett, Anthony Lange</i> .....	50
Evaluating the Modularity of Model-Driven Object-Oriented Software Architectures <i>Geert Poels</i> .....	52
Assessing the Evolvability of Software Architectures <i>Tom Mens, Kim Mens</i> .....	54
The Influence of Domain-Specific Abstraction on Evolvability of Software Architectures for Information Systems <i>Jan Verelst</i> .....	56
Object-Oriented Frameworks: Architecture Adaptability <i>Paolo Predonzani, Giancarlo Succi, Andrea Valerio, Tullio Vernazza</i> .....	58
A Transformational Approach to Structural Design Assessment and Change <i>Paulo S.C. Alencar, Donald D. Cowan, Jing Dong, Carlos J.P. Lucena</i> .....	60
Reengineering the Modularity of OO Systems <i>Fernando Brito e Abreu, Gonçalo Pereira, Pedro Sousa</i> .....	62
A Contextual Help System Based on Intelligent Diagnosis Processes Aiming to Design and Maintain Object-Oriented Software Packages <i>Annya Romanczuk-Réquilé, Cabral Lima, Celso Kaestner, Edson Scalabrin</i> .....	64
Analysis of Overridden Methods to Infer Hot Spots <i>Serge Demeyer</i> .....	66
Purpose: between types and code <i>Natalia Romero, María José Presso, Verónica Argañaraz, Gabriel Baum, Máximo Prieto</i> .....	68

Ensuring Object Survival in a Desert  
*Xavier Alvarez, Gaston Dombiak, Felipe Zak, Máximo Prieto* ..... 70

**III. Experiences in Object-Oriented Re-Engineering**  
***Stéphane Ducasse, Joachim Weisbrod*** ..... **72**

Exploiting Design Heuristics for Automatic Problem Detection  
*Holger Bär, Oliver Ciupke* ..... 73

Design Metrics in the Reengineering of Object-Oriented Systems  
*R. Harrison, S. Counsell, R. Nithi* ..... 74

Visual Detection of Duplicated Code  
*Matthias Rieger, Stéphane Ducasse* ..... 75

Dynamic Type Inference to Support Object-Oriented Reengineering in Smalltalk  
*Pascal Rapicault, Mireille Blay-Fornarino, Stéphane Ducasse, Anne-Marie Dery* .. 76

Understanding Object-Oriented Programs through Declarative Event Analysis  
*Tamar Richner, Stéphane Ducasse, Roel Wuyts*..... 78

Program Restructuring to Introduce Design Patterns  
*Mel Ó Cinnéide, Paddy Nixon*..... 79

Design Patterns as Operators Implemented with Refactorings  
*Benedikt Schulz, Thomas Genssler*..... 80

“Good Enough” Analysis for Refactoring  
*Don Roberts, John Brant*..... 81

An Exchange Model for Reengineering Tools  
*Sander Tichelaar, Serge Demeyer*..... 82

Capturing the Existing OO Design with the ROMEO Method  
*Theodoros Lantzios, Anthony Bryant, Helen M. Edwards* ..... 84

Systems Reengineering Patterns  
*Perdita Stevens, Rob Pooley*..... 85

Using Object-Orientation to Improve the Software of the German Shoe Industry  
*Werner Vieth*..... 86

Report of Working Group on Reengineering Patterns  
*Perdita Stevens* ..... 89

Report of Working Group on Reengineering Operations  
*Mel Ó Cinnéide*..... 93

Report of Working Group on Dynamic Analysis  
*Tamar Richner*..... 95

Report of Working Group on Metrics/Tools  
*Steve Counsel*..... 96

**IV. Object-Oriented Software Architectures*****Jan Bosch, Helene Bachatene, Görel Hedin, Kai Koskimies* 99**

Pattern-Oriented Framework Engineering Using FRED

*Markku Hakala, Juha Hautamäki, Jyrki Tuomi, Antti Viljamaa, Jukka Viljamaa ...* 105

Exploiting Architecture in Experimental System Development

*Klaus Marius Hansen* ..... 110

Object-Orientation and Software Architecture

*Philippe Lalanda, Sophie Cherki* ..... 115

Semantic Structure: A Basis for Software Architecture

*Robb D. Nebbe* ..... 120

A Java Architecture for Dynamic Object and Framework Customizations

*Linda M. Seiter* ..... 125**V. Third International Workshop on Component-Oriented Programming (WCOP'98)*****Jan Bosch, Clemens Szyperski, Wolfgang Weck* 130**

Type-Safe Delegation for Dynamic Component Adaptation

*Günter Kniesel* ..... 136

Consistent Extension of Components in Presence of Explicit Invariants

*Anna Mikhajlova* ..... 138

Component Composition with Sharing

*Geoff Outhred, John Potter* ..... 141

Late Component Adaptation

*Ralph Keller, Urs Hölzle* ..... 143

Adaptation of Connectors in Software Architectures

*Ian Welch, Robert Stroud* ..... 145

Connecting Incompatible Black-Box Components Using Customizable Adapters

*Bülent Küçük, M. Nedim Alpdemir, Richard N. Zobel* ..... 147

Dynamic Configuration of Distributed Software Components

*Eila Niemelä, Juha Marjeta* ..... 149

Components for Non-Functional Requirements

*Bert Robben, Wouter Joosen, Frank Matthijs, Bart Vanhaute, Pierre Verbaeten ...* 151

The Operational Aspects of Component Architecture

*Mark Lycett, Ray J. Paul* ..... 153

Architectures for Interoperation between Component Frameworks

*Günter Graw, Arnulf Mester* ..... 155

A Model for Gluing Together

*P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, L.C.M. Nova* ..... 157

Component Testing: An Extended Abstract <i>Mark Grossman</i> .....	159
Applying a Domain Specific Language Approach to Component Oriented Programming <i>James Ingham, Malcolm Munro</i> .....	161
The Impact of Large-Scale Component and Framework Application Development on Business <i>David Helton</i> .....	163
Maintaining a COTS Component-Based Solution Using Traditional Static Analysis Techniques <i>R. Cherinka, C. Overstreet, J. Ricci, M. Schrank</i> .....	165
<b>VI. Second ECOOP Workshop on Precise Behavioral Semantics (with an Emphasis on OO Business Specifications)</b> <b><i>Bernhard Rumpe, Haim Kilov</i></b>	<b>167</b>
<b>VII. Tools and Environments for Business Rules</b> <b><i>Kim Mens, Roel Wuyts, Dirk Bontridder, Alain Grijsels</i></b>	<b>189</b>
Enriching Constraints and Business Rules in Object Oriented Analysis Models with Trigger Specifications <i>Stefan Van Baelen</i> .....	197
Business Rules vs. Database Rules - A Position Statement <i>Brian Spencer</i> .....	200
Elements Advisor by Neuron Data <i>Bruno Jouhier, Carlos Serrano-Morale, Eric Kintzer</i> .....	202
Business Rules Layers Between Process and Workflow Modeling: An Object-Oriented Perspective <i>Gerhard F. Knolmayer</i> .....	205
Business-Object Semantics Communication Model in Distributed Environment <i>Hei-Chia Wang, V. Karakostas</i> .....	208
How Business Rules Should be Modeled and Implemented in OO <i>Leo Hermans, Wim van Stokkum</i> .....	211
A Reflective Environment for Configurable Business Rules and Tools <i>Michel Tilman</i> .....	214
<b>VIII. Object-Oriented Business Process modelling</b> <b><i>Elizabeth A. Kendall (Ed.)</i></b>	<b>217</b>
Business Process Modeling - Motivation, Requirements, Implementation <i>Ilija Bider, Maxim Khomyakov</i> .....	217
An Integrated Approach to Object Oriented Modeling of Business Processes <i>Markus Podolsky</i> .....	219

Enterprise Modelling <i>Monique Snoeck, Rakesh Agarwal, Chiranjit Basu</i> .....	222
Requirements Capture Using Goals <i>Ian F. Alexander</i> .....	228
'Contextual Objects' or Goal Orientation for Business Process Modeling <i>Birol Berkem</i> .....	232
Mapping Business Processes to Software Design Artifacts <i>Pavel Hruby</i> .....	234
Mapping Business Processes to Objects, Components and Frameworks: A Moving Target! <i>Eric Callebaut</i> .....	237
Partitioning Goals with Roles <i>Elizabeth A. Kendall</i> .....	240
<b>IX. Object-Oriented Product Metrics for Software Quality Assessment</b> <b><i>Houari A. Sahraoui</i></b> .....	<b>242</b>
Do Metrics Support Framework Development ? <i>Serge Demeyer, Stéphane Ducasse</i> .....	247
Assessment of Large Object Oriented Software Systems: A metrics Based Process <i>Gerd Köhler, Heinrich Rust, Frank Simon</i> .....	250
Using Object-Oriented Metrics for Automatic Design Flaws Detection in Large Scale Systems <i>Radu Marinescu</i> .....	252
An OO Framework for Software Measurement and Evaluation <i>Reiner R. Dumke</i> .....	253
A Product Metrics Tool Integrated into a Software Development Environment <i>Claus Lewerentz, Frank Simon</i> .....	255
Collecting and Analyzing the MOOD2 Metrics <i>Fernando Brito e Abreu, Jean Sebastien Cuche</i> .....	259
An Analytical Evaluation of Static Coupling Measures for Domain Object Classes <i>Geert Poels</i> .....	261
Impact of Complexity Metrics on Reusability in OO Systems <i>Yida Mao, Houari A. Sahraoui, Hakim Lounis</i> .....	264
A Formal Analysis of Modularisation and Its Application to Object-Oriented Methods <i>Adam Batenin</i> .....	267
Software Products Evaluation <i>Teade Punter</i> .....	269

Is Extension Complexity a Fundamental Software Metric? <i>E. Kantorowitz</i> .....	270
---	-----

<b>X. ECOOP Workshop on Distributed Object Security</b> <b><i>Christian D. Jensen, George Coulouris, Daniel Hagimont</i></b> .....	<b>273</b>
---	------------

Merging Capabilities with the Object Model of an Object-Oriented Abstract Machine <i>María Angeles Díaz Fondón, Darío Álvarez Gutiérrez, Armando García-Mendoza Sánchez, Fernando Álvarez García, Lourdes Tajés Martínez, Juan Manuel Cueva Lovelle</i> .....	277
--	-----

Mutual Suspicion in a Generic Object-Support System <i>Christian D. Jensen, Daniel Hagimont</i> .....	278
--	-----

Towards an Access Control Policy Language for CORBA <i>Gerald Brose</i> .....	279
--	-----

Security for Network Places <i>Tim Kindberg</i> .....	280
--	-----

Reflective Authorization Systems <i>Massimo Ancona, Walter Cazzola, Eduardo B. Fernandez</i> .....	281
---	-----

Dynamic Adaptation of the Security Properties of Applications and Components <i>Ian Welch, Robert Stroud</i> .....	282
---	-----

Interoperating between Security Domains <i>Charles Schmidt, Vipin Swarup</i> .....	283
---	-----

Delegation-Based Access Control for Intelligent Network Services <i>Tuomas Aura, Petteri Koponen, Juhana Räsänen</i> .....	284
---	-----

Secure Communication in non-uniform Trust Environments <i>George Coulouris, Jean Dollimore, Marcus Roberts</i> .....	285
---	-----

Dynamic Access Control for Shared Objects in Groupware Applications <i>Andrew Rowley</i> .....	286
---	-----

A Fault-Tolerant Secure CORBA Store using Fragmentation-Redundancy-Scattering <i>Cristina Silva, Luís Rodrigues</i> .....	287
--	-----

<b>XI. 4th ECOOP Workshop on Mobility: Secure Internet Mobile Computations</b> <b><i>Leila Ismail, Ciarán Bryce, Jan Vitek</i></b> .....	<b>288</b>
---	------------

Protection in Programming-Language Translations: Mobile Object Systems <i>Martín Abadi</i> .....	291
---	-----

D'Agents: Future Security Directions <i>Robert S. Gray</i> .....	292
---	-----



A Multi-Level Interface Structure for the Selective Publication of Services in an Open Environment <i>Jarle Hulaas, Alex Villazón, Jürgen Harms</i> .....	293
A Practical Demonstration of the Effect of Malicious Mobile Agents on CPU Load Balancing <i>Adam P. Greenaway, Gerard T. McKee</i> .....	294
Role-Based Protection and Delegation for Mobile Object Environments <i>Nataraj Nagaratnam, Doug Lea</i> .....	295
Coarse-grained Java Security Policies <i>T. Jensen, D. Le Métayer, T. Thorn</i> .....	296
Secure Recording of Itineraries through Cooperating Agents <i>Volker Roth</i> .....	297
A Model of Attacks of Malicious Hosts Against Mobile Agents <i>Fritz Hohl</i> .....	299
Agent Trustworthiness <i>Lora L. Kassab, Jeffrey Voas</i> .....	300
Protecting the Itinerary of Mobile Agents <i>Uwe G. Wilhelm, Sebastian Staamann, Levente Buttyán</i> .....	301
Position paper: Security in Tacoma <i>Nils P. Sudmann</i> .....	302
Type-Safe Execution of Mobile Agents in Anonymous Networks <i>Matthew Hennessy, James Riely</i> .....	304
Mobile Computations and Trust <i>Vipin Swarup</i> .....	305
Case Studies in Security and Resource Management for Mobile Objects <i>Dejan Milojicic, Gul Agha, Philippe Bernadat, Deepika Chauhan, Shai Guday, Nadeem Jamali, Dan Lambright</i> .....	306
<b>XII. 3rd Workshop on Mobility and Replication</b> <b><i>Birger Andersen, Carlos Baquero, Niels C. Juul</i></b> .....	<b>307</b>
UbiData: An Adaptable Framework for Information Dissemination to Mobile Users <i>Ana Paula Afonso, Francisco S. Regateiro, Mário J. Silva</i> .....	309
Twin-Transactions - Delayed Transaction Synchronisation Model <i>A. Rasheed, A. Zaslavsky</i> .....	311
Partitioning and Assignment of Distributed Object Applications Incorporating Object Replication and Caching <i>Doug Kimelman, V.T. Rajan, Tova Roth, Mark Wegman</i> .....	313

Open Implementation of a Mobile Communication System <i>Eddy Truyen, Bert Robben, Peter Kenens, Frank Matthijs, Sam Michiels, Wouter Joosen, Pierre Verbaeten</i> .....	315
Towards a Grand Unified Framework for Mobile Objects <i>Francisco J. Ballesteros, Fabio Kon, Sergio Arévalo, Roy H. Campbell</i> .....	317
Measuring the Quality of Service of Optimistic Replication <i>Geoffrey H. Kuenning, Rajive Bagrodia, Richard G. Guy, Gerald J. Popek, Peter Reiher, An-I Wang</i> .....	319
Evaluation Overview of the Replication Methods for High Availability Databases <i>Lars Frank</i> .....	321
Reflection Based Mobile Replication <i>Luis Alonso</i> .....	323
Support for Mobility and Replication in the AspectIX Architecture <i>Martin Geier, Martin Steckermeier, Ulrich Becker, Franz J. Hauck, Erich Meier, Uwe Rasthofer</i> .....	325
How to Combine Strong Availability with Weak Replication of Objects? <i>Alice Bonhomme, Laurent Lefèvre</i> .....	327
Tradeoffs of Distributed Object Models <i>Franz J. Hauck, Francisco J. Ballesteros</i> .....	329
<b>XIII. Learning and Teaching Objects Successfully</b>	<b>333</b>
<b><i>Jürgen Börstler</i></b>	
Teaching Concepts in the Object-Oriented Field <i>Erzsébet Angster</i> .....	335
A Newcomer's Thoughts about Responsibility Distribution <i>Beáta Kelemen</i> .....	340
An Effective Approach to Learning Object-Oriented Technology <i>Alejandro Fernández, Gustavo Rossi</i> .....	344
Teaching Objects: The Case for Modelling <i>Ana Maria D. Moreira</i> .....	350
Involving Learners in Object-Oriented Technology Teaching Process: Five Web-Based Steps for Success <i>Ahmed Seffah</i> .....	355
How to Teach Object-Oriented Programming to Well-Trained Cobol Programmers <i>Markus Knasmüller</i> .....	359

<b>XIV. ECOOP'98 Workshop on Reflective Object-Oriented Programming and Systems</b>	
<b><i>Robert Stroud, Stuart P. Mitchell</i></b>	<b>363</b>
MOPping up Exceptions <i>Stuart P. Mitchell, A. Burns, A. J. Wellings</i> .....	365
A Metaobject Protocol for Correlate <i>Bert Robben, Wouter Joosen, Frank Matthijs, Bart Vanhaute, Pierre Verbaeten ...</i>	367
Adaptive Active Object <i>José L. Contreras, Jean-Louis Sourrouille</i> .....	369
Yet Another java.lang.Class <i>Shigeru Chiba, Michiaki Tsubori</i> .....	372
A Reflective Java Class Loader <i>Ian Welch, Robert Stroud</i> .....	374
Sanity Checking OS Configuration via Reflective Computation <i>Lutz Wohlrab</i> .....	376
A Reflective Component Model for Open Systems <i>José M. Troya, Antonio Vallecillo</i> .....	378
CoffeeStrainer - Statically Checking Structural Constraints on Java Programs <i>Boris Bokowski</i> .....	380
A Computational Model for a Distributed Object-Oriented Operating System Based on a Reflective Abstract Machine <i>Lourdes Tajés Martínez, Fernando Álvarez-García, Marián Díaz-Fondón, Darío Álvarez Gutiérrez, Juan Manuel Cueva Lovelle</i> .....	382
A Reflective Implementation of a Distributed Programming Model <i>R. Pawlak, L. Duchien, L. Seinturier, P. Champagnoux, D. Enselme, G. Florin</i> .....	384
Evaluation of Object-Oriented Reflective Models <i>Walter Cazzola</i> .....	386
2K: A Reflective Component-Based Operating System for Rapidly Changing Environments <i>Fabio Kon, Ashish Singhai, Roy H. Campbell, Dulcinea Carvalho, Robert Moore, Francisco J. Ballesteros</i> .....	388
Experiments with Reflective Middleware <i>Fábio M. Costa, Gordon S. Blair, Geoff Coulson</i> .....	390
Three Practical Experiences of Using Reflection <i>Charlotte Pii Lunau</i> .....	392

**XV. Aspect Oriented Programming*****Cristina Videira Lopes (Ed.)* 394**Towards a Generic Framework for AOP  
*Pascal Fradet, Mario Südholt* ..... 394Recent Developments in AspectJ  
*Cristina Videira Lopes, Gregor Kiczales* ..... 398Coordination and Composition: The Two Paradigms Underlying AOP ?  
*Robb D. Nebbe*..... 402Operation-Level Composition: A Case in (Join) Point  
*Harold L. Ossher, Peri L. Tarr*..... 406Deriving Design Aspects from Conceptual Models  
*Bedir Tekinerdogan, Mehmet Aksit* ..... 410Aspect-Oriented Logic Meta Programming  
*Kris De Volder*..... 414Roles, Subjects and Aspects: How Do They Relate?  
*Daniel Bardou* ..... 418HAL: A Design-Based Aspect Language for Distribution Control  
*Ulrich Becker, Franz J. Hauck, J. Kleinöder* ..... 420Interactions between Objects: An Aspect of Object-Oriented Languages  
*L. Berger, A.M. Dery, M. Fornarino* ..... 422Replication as an aspect: The Naming Problem  
*Johan Fabry*..... 424AspectIX: A Middleware for Aspect-Oriented Programming  
*Franz J. Hauck, Ulrich Becker, Martin Geier, Erich Meier, Uwe Rasthofer, Martin Steckermeier* ..... 426An AOP Case with Static and Dynamic Aspects  
*Peter Kenens, Sam Michiels, Frank Matthijs, Bert Robben, Eddy Truyen, Bart Vanhaute, Wouter Joosen, Pierre Verbaeten* ..... 428Visitor Beans: An Aspect-Oriented Pattern  
*David H. Lorenz* ..... 431Assessing Aspect-Oriented Programming: Preliminary Results  
*Robert J. Walker, Elisa L.A. Baniassad, Gail C. Murphy* ..... 433Aspect-Oriented Programming using Composition Filters  
*Mehmet Aksit, Bedir Tekinerdogan* ..... 435The impact of Aspect-Oriented Programming on Formal Methods  
*Lynne Blair, Gordon S. Blair*..... 436

Aspects of Enterprise Java Beans <i>Gregory Blank, Gene Vayngrib</i> .....	437
Aspect-Oriented Programming in the Coyote Project <i>Vinny Cahill, Jim Dowling, Tilman Schäfer, Barry Redmond</i> .....	438
Towards Reusable Synchronisation for Object-Oriented Languages <i>David Holmes, James Noble, John Potter</i> .....	439
Agent Roles and Aspects <i>Elizabeth A. Kendall</i> .....	440
The Distribution Aspect - A Meeting Ground between Tool and Programmer <i>Doug Kimelman</i> .....	441
Is Composition of Metaobjects = Aspect-Oriented Programming <i>Charlotte Pii Lunau</i> .....	442
Run-time Adaptability of Synchronization Policies in Concurrent Object-Oriented Languages <i>Fernando Sánchez, Juan Hernández, Juan Manuel Murillo, Enrique Pedraza</i> .....	443
<b>XVI. Parallel Object-Oriented Scientific Computing</b> <b><i>Kei Davis</i></b> .....	<b>444</b>
OVERTURE: Object-Oriented Parallel Adaptive Mesh Refinement for Serial and Parallel Environments <i>David L. Brown, Kei Davis, William D. Henshaw, Daniel J. Quinlan, Kristi Brislawn</i> .....	446
Applying OO Concepts to Create an Environment for Intensive Multi-user Computations in Electromagnetism <i>Delphine Caron</i> .....	448
Rethinking a MD code using Object Oriented Technology <i>Stefano Cozzini</i> .....	450
ROSE: An Optimizing Transformation System for C++ Array-Class Libraries <i>Kei Davis, Daniel Quinlan</i> .....	452
The Parallel Asynchronous Data Routing Environment PADRE <i>Kei Davis, Daniel Quinlan</i> .....	453
Object Oriented Programming and Finite Element Analysis: Achieving Control Over the Calculation Process <i>R. I. Mackie, R. R. Gajewski</i> .....	456
Tecolote: An Object-Oriented Framework for Physics Development <i>J. C. Marshall, L. A. Ankeny, S. P. Clancy, J. H. Hall, J. H. Heiken, K. S. Holian, S. R. Lee, G. R. McNamara, J. W. Painter, M. E. Zander, J. C. Cummings, S. W. Haney, S. R. Karmesin, W. F. Humphrey, J. V. Reynders, T. W. Williams, R. L. Graham</i> ....	458
Is Java Suitable for Portable High-Performance Computing ? <i>Satoshi Matsuoka, Shigeo Itou</i> .....	460

Applying Fortran 90 and Object-Oriented Techniques to Scientific Applications <i>Charles D. Norton, Viktor Decyk, Joan Slottow</i> .....	462
Development and Utilization of Parallel Generic Algorithms for Scientific Computations <i>A. Radenski, A. Vann, B. Norris</i> .....	464
The Matrix Template Library: A Unifying Framework for Numerical Linear Algebra <i>Jeremy G. Siek, Andrew Lumsdaine</i> .....	466
A Rational Approach to Portable High Performance: The Basic Linear Algebra Instruction Set (BLAIS) and the Fixed Algorithm Size Template (FAST) Library <i>Jeremy G. Siek, Andrew Lumsdaine</i> .....	468
Object-Oriented Programming in High Performance Fortran <i>E. de Sturler</i> .....	470
Towards Real World Scientific Web Computing <i>Matthias Weidmann, Philipp Drum, Norman Thomson, Peter Luksch</i> .....	472
<b>XVII. Automating the Object-Oriented Development Process</b> <b><i>Mehmet Aksit, Bedir Tekinerdogan</i></b>	<b>474</b>
The Case for Cooperative Requirement Writing <i>Vincenzo Ambriola, Vincenzo Gervasi</i> .....	477
Systematic Construction of UML Associations and Aggregations Using cOlOr framework <i>Franck Barbier</i> .....	480
Software Quality in the Objectory Process <i>Klaas van den Berg</i> .....	483
Evaluating OO-CASE Tools: OO Research Meets Practice <i>Danny Greefhorst, Mark van Elswijk, Matthijs Maat, Rob Maijers</i> .....	486
Conceptual Predesign as a Stopover for Mapping Natural Language Requirements Sentences to State Chart Patterns <i>Christion Kop, Heinrich C. Mayr</i> .....	489
Using the MétaGen Modeling and Development Environment in the FIBOF Esprit Project <i>B. Lesueur, N. Revault, G. Sunyé, M. Ziane</i> .....	492
Formalizing Artifacts of Object-Oriented Analysis & Design Methods <i>Motoshi Saeki</i> .....	493
Providing Automatic Support for Heuristic Rules of Methods <i>Bedir Tekinerdogan, Mehmet Aksit</i> .....	496
From Visual Specifications to Executable Code <i>Enn Tyugu</i> .....	499

**XVIII. Object-Oriented Technology and Real-Time Systems*****Eugene Durr, Leonor Barroca, François Terrier* 502**

Dynamic Scheduling of Object Invocations in Distributed Object -Oriented Real-Time Systems

*Bo N. Jørgensen, Wouter Joosen* ..... 503

A Code Generator with Application-Oriented Size Optimization for Object-Oriented Embedded Control Software

*Fumio Narisawa, Hidemitsu Naya, Takanori Yokoyama* ..... 507

UML/PNO: A Way to Merge UML and Petri Net Objects for the Analysis of Real-Time Systems

*Jérôme Delatour, Mario Paludetto* ..... 511

Modular Development of Control and Computational Modules Using Reactive Objects

*Frédéric Boulanger, Guy Vidal-Naquet* ..... 515

TDE: A Time Driven Engine for Predictable Execution of Real-Time Systems

*Flavio De Paoli, F. Tisato, C. Bellettini* ..... 519

Virtual World Objects for Real-Time Cooperative Design

*Christian Toinard, Nicolas Chevassus* ..... 525

Providing Real-Time Object-Oriented Industrial Messaging Services

*R. Boissier, M. Epivent, E. Gressier-Soudan, F. Horn, A. Laurent, D. Razafindramary* ..... 529

A Train Control Modeling with the Real-Time Object Paradigm

*Sébastien Gérard, Agnès Lanusse, François Terrier* ..... 533

**XIX. Demonstrations*****Jan Dockx* 539**

Reflections on a demonstration chair

*Jan Dockx* ..... 539

Visualizing Object-Oriented Programs with Jinsight

*Wim De Pauw, John Vlissides* ..... 541

SoftDB - A Simple Software Database

*Markus Knasmüller* ..... 543

OO-in-the-Large: Software Development with Subject-Oriented Programming

*Harold Ossher, Peri Tarr* ..... 545

Dynamic Application Partitioning in VisualAge Generator Version 3.0

*Doug Kimelman, V. T. Rajan, Tova Roth, Mark Wegman, Beth Lindsey, Hayden Lindsey, Sandy Thomas* ..... 547

The Refactoring Browser

*John Brant, Don Roberts* ..... 549

Business Objects with History and Planning <i>Ilia Bider, Maxim Khomyakov</i> .....	550
Poor Man's Genericity for Java <i>Boris Bokowski, Markus Dahm</i> .....	552
An Object DBMS for Multimedia Presentations Including Video Data <i>Rafael Lozano, Michel Adiba, Herve Martin, Francoise Mocellin</i> .....	553
OPCAT - Object-Process Case Tool: An Integrated System Engineering Environment (ISEE) <i>Dov Dori, Arnon Sturm</i> .....	555
<b>XX. Posters</b>	
<b><i>Patrick Steyaert (Ed.)</i></b>	<b>557</b>
The AspectIX ORB Architecture <i>Franz J. Hauck, Ulrich Becker, Martin Geier, Erich Meier, Uwe Rasthofer, Martin Steckermeier</i> .....	557
Formalization of Component Object Model (COM) - The COMEL Language <i>Rosziati Ibrahim, Clemens Szyperski</i> .....	558
Oberon-D = Object-Oriented System + Object-Oriented Database <i>Markus Knasmüller</i> .....	559
OctoGuide - a Graphical Aid for Navigating among Octopus/UML Artifacts <i>Domiczi Endre</i> .....	560
Run Time Reusability in Object-Oriented Schematic Capture <i>David Parsons, Tom Kazmierski</i> .....	561
Replication as an Aspect <i>Johan Fabry</i> .....	563
<b>Author Index</b>	<b>564</b>



<http://www.springer.com/978-3-540-65460-5>

Object-Oriented Technology. ECOOP '98 Workshop  
Reader

ECOOP'98 Workshop, Demos, and Posters Brussels,  
Belgium, July 20-24, 1998 Proceedings

Demeyer, S.; Bosch, J. (Eds.)

1998, XXII, 582 p., Softcover

ISBN: 978-3-540-65460-5