

## PAPERS & PANELS

Tuesday, October 23, 1990

9:00 am - 10:30 am

*SESSION 1: Keynote Address*

11:00 am - 12:30 pm

*SESSION 2A: Design*

|   |    |
|---|----|
| <b>The Design of the C++ Booch Components</b> .....   | 1  |
| <i>Grady Booch, Wizard Software</i>   |    |
| <i>Michael Vilot, ObjectWare, Inc.</i>  |    |
| <b>An Iterative-Design Model For Reusable Object-Oriented Software</b> .....                          | 12 |
| <i>Sanjiv Gossain, Bruce Anderson, University of Essex</i>  |    |
| <b>Graphical Specification of Object Oriented Systems</b> .....                                       | 28 |
| <i>Stephen Bear, Phillip Allen, Derek Coleman, Fiona Hayes, Hewlett-Packard Laboratories, Bristol</i> |    |

*SESSION 2B: Concurrency 1*

|  |    |
|--|----|
| <b>Viewing Objects as Patterns of Communicating Agents</b> .....                   | 38 |
| <i>Oscar Nierstrasz, Michael Papathomas, Université de Genève</i>                  |    |
| <b>LO and Behold! Concurrent Structured Processes</b> .....                        | 44 |
| <i>Jean-Marc Andreoli, Remo Pareschi, ECRC</i>                                     |    |
| <b>Actors as a Special Case of Concurrent Constraint (Logic) Programming</b> ..... | 57 |
| <i>Kenneth M. Kahn, Vijay A. Saraswat, Xerox PARC</i>                              |    |

## 2:00 pm - 3:30 pm

### SESSION 3A: Databases and Constraints

|  |    |
|--|----|
| <b>Beyond Schema Evolution to Database Reorganization</b> .....                    | 67 |
| Barbara Staudt Lerner, A. Nico Habermann, <i>Carnegie Mellon University</i>        |    |
| <b>Kaleidoscope: Mixing Objects, Constraints, and Imperative Programming</b> ..... | 77 |
| Bjorn N. Freeman-Benson, <i>University of Washington and Université de Nantes</i>  |    |
| <b>What Tracers Are Made Of</b> .....  | 89 |
| Heinz-Dieter Böcker, <i>GMD-IPSI</i>   |    |
| Jürgen Herzog, <i>University of Stuttgart</i>                                      |    |

### SESSION 3B: Panel

|  |     |
|--|-----|
| <b>Panel— Theory of Concurrent Object-Oriented Programming</b> ..... | 100 |
| Gul Agha, <i>University of Illinois at Urbana-Champaign, Chair</i>   |     |
| Samson Abramsky, <i>Imperial College</i>                             |     |
| Carl Hewitt, <i>Massachusetts Institute of Technology</i>            |     |
| Robin Milner, <i>University of Edinburgh</i>                         |     |
| Peter Wegner, <i>Brown University</i>                                |     |
| Akinori Yonezawa, <i>University of Tokyo</i>                         |     |

## Wednesday, October 24, 1990

### 9:00 am - 10:30 am

### SESSION 4A: Concurrency II

|  |     |
|--|-----|
| <b>A Logical Theory of Concurrent Objects</b> .....  | 101 |
| José Meseguer, <i>SRI International and Center for the Study of Language and Information, Stanford University</i>    |     |
| <b>Message Pattern Specifications: A New Technique for Handling Errors in Parallel Object Oriented Systems</b> ..... | 116 |
| Jan A. Purchase, Russel L. Winder, <i>University College London</i>  |     |
| <b>Garbage Collection of Actors</b> .....  | 126 |
| Dennis Kafura, <i>Virginia Polytechnic Institute and State University,</i>   |     |
| Doug Washabaugh, <i>Digital Equipment Corp, Littleton,</i>   |     |
| Jeff Nelson, <i>Digital Equipment Corp, Nashua</i>   |     |

### SESSION 4B: Panel

|  |     |
|--|-----|
| <b>Panel— Structured Analysis and Object Oriented Analysis</b> ..... | 135 |
| Dennis de Champeaux, <i>Hewlett-Packard Laboratories, Moderator</i>  |     |
| Larry Constantine, <i>Independent Consultant</i>                     |     |
| Ivar Jacobson, <i>Objective Systems SF AB</i>                        |     |
| Stephen Mellor, <i>Project Technology, Inc</i>                       |     |
| Paul Ward, <i>Software Development Concepts</i>                      |     |
| Edward Yourdon, <i>American Programmer</i>                           |     |

## 11:00 am - 12:30 pm

### SESSION 5A: Types I

|  |     |
|--|-----|
| <b>Strong Typing of Object-Oriented Languages Revisited</b> .....  | 140 |
| Ole Lehrmann Madsen, <i>Aarhus University</i> ,<br>Boris Magnusson, <i>University of Lund</i> ,<br>Birger Møller-Pedersen, <i>Norwegian Computing Center</i> |     |
| <b>Type Substitution for Object-Oriented Programming</b> .....   | 151 |
| Jens Palsberg, Michael I. Schwartzbach, <i>Aarhus University</i>   |     |
| <b>A Parallel Object-Oriented Language with Inheritance and Subtyping</b> .....  | 161 |
| Pierre America, Frank van der Linden, <i>Philips Research Laboratories</i>   |     |

### SESSION 5B: Software Engineering

|  |     |
|--|-----|
| <b>Contracts: Specifying Behavioral Compositions in Object-Oriented Systems</b> .....  | 169 |
| Richard Helm, <i>IBM Thomas J. Watson Research Center</i><br>Ian M. Holland, <i>Northeastern University</i><br>Dipayan Gangopadhyay, <i>IBM Thomas J. Watson Research Center</i> |     |
| <b>When Objects Collide: Experiences with Reusing Multiple Class Hierarchies</b> .....   | 181 |
| Lucy M. Berlin, <i>Hewlett-Packard Laboratories, Palo Alto</i>   |     |
| <b>PCLOS: Stress Testing CLOS Experiencing the Metaobject Protocol</b> .....   | 194 |
| Andreas Paepcke, <i>Hewlett-Packard Laboratories, Palo Alto</i>  |     |

## 2:00 pm - 3:30 pm

### SESSION 6A: Type Issues II

|   |     |
|---|-----|
| <b>Reasoning about Object-Oriented Programs that Use Subtypes</b> .....   | 212 |
| Gary T. Leavens, <i>Iowa State University</i><br>William E. Weihl, <i>Massachusetts Institute of Technology</i> |     |
| <b>Type Consistency of Queries in an Object-Oriented Database System</b> .....                                  | 224 |
| Dave D. Straube, M. Tamer Oezsu, <i>University of Alberta</i>   |     |

### SESSION 6B: Panel — Reusability

|  |     |
|--|-----|
| <b>Panel — Designing Reusable Designs: Experiences Designing Object-Oriented Frameworks</b> .....  | 234 |
| Allen Wirfs-Brock, <i>Instantiations Inc., Moderator</i><br>Ralph Johnson, <i>University of Illinois</i><br>Ward Cunningham, <i>Wyatt Software</i><br>Mark Linton, <i>Stanford University</i><br>TBD, <i>Apple, Inc.</i> |     |

Thursday, October 25, 1990

9:00 am - 10:30 am

SESSION 7A: Panel — Object-Oriented Databases

|   |     |
|---|-----|
| <b>Panel — Issues in Object Database Management</b> ..... | 235 |
| Jacob Stein, <i>ServioLogic</i> , Moderator               |     |
| Tim Andrews, <i>Ontologic</i>                             |     |
| Bill Kent, <i>Hewlett-Packard</i>                         |     |
| Kate Rotzell, <i>Versant Object Technology</i>            |     |
| Dan Weinreb, <i>Object Design</i>                         |     |

SESSION 7B: User Interfaces and Visualization

|  |     |
|--|-----|
| <b>A Framework for Visualizing Object-Oriented Systems</b> .....       | 237 |
| Volker Haarslev, <i>Xerox PARC</i> ,                                   |     |
| Ralf Möller, <i>University of Hamburg</i>                              |     |
| <b>Painting Multiple Views of Complex Objects</b> .....                | 245 |
| John Alan McDonald, <i>Werner Stuetzle, University of Washington</i>   |     |
| Andreas Buja, <i>Bellcore</i>  |     |
| <b>MoDE : A UIMS for Smalltalk</b> .....                               | 258 |
| Yen-Ping Shan, <i>University of North Carolina &amp; IBM, Cary, NC</i> |     |

11:00 am - 12:30 pm

SESSION 8A: Languages I

|   |     |
|---|-----|
| <b>COOL: Kernel Support for Object-Oriented Environments</b> .....                        | 269 |
| Sabine Habert, Laurence Mosseri, <i>INRIA</i> ,   |     |
| Vadim Abrossimov, <i>Chorus-systemes</i>  |     |
| <b>The Performance of an Object-Oriented Threads Package</b> .....                        | 278 |
| John E. Faust, Henry M. Levy, <i>University of Washington</i>                             |     |
| <b>Object-Oriented Real-Time Language Design: Constructs for Timing Constraints</b> ..... | 289 |
| Yutaka Ishikawa, <i>Electrotechnical Laboratory</i> ,                                     |     |
| Hideyuki Tokuda, Clifford W. Mercer, <i>Carnegie Mellon University</i>                    |     |

SESSION 8B: Panel — Experience

|   |     |
|---|-----|
| <b>Panel — OOP in the Real World</b> .....      | 299 |
| Rick DeNatale, <i>IBM Corp, Cary, NC, Chair</i> |     |
| Charles Irby, <i>Metaphor</i>                   |     |
| John LaLonde, <i>Extrel</i>                     |     |
| Burton Leathers, <i>Cognos</i>                  |     |
| Reed Phillips, <i>Knowledge Systems Corp.</i>   |     |

2:00 pm - 3:30 pm

SESSION 9A: *Reflection*

|   |     |
|---|-----|
| <b>Mixin-Based Inheritance</b> .....  | 303 |
| Gilad Bracha, <i>University of Utah</i> ,   |     |
| William Cook, <i>Hewlett-Packard Laboratories, Palo Alto</i>                                  |     |
| <b>The Point of View Notion for Multiple Inheritance</b> .....                                | 312 |
| Bernard Carré, Jean-Marc Geib, <i>Laboratoire d'Informatique Fondamentale de Lille (LIFL)</i> |     |
| <b>Exception Handling and Object-Oriented Programming: Towards a Synthesis</b> .....          | 322 |
| Christophe Dony, <i>Rank-Xerox France</i> and <i>LITP Univ. of Paris VI</i>                   |     |

SESSION 9B: *Panel — Distributed Object Management*

|   |     |
|---|-----|
| <b>Panel — OOPSLA Distributed Object Management</b> .....       | 331 |
| John R. Rymer, <i>Seybold Office Computing Group, Moderator</i> |     |
| Richard Mark Soley, <i>Object Management Group</i>              |     |
| William Stephen Andreas, <i>Data General</i>                    |     |
| Ian Fuller, <i>Project Manager, Hewlett-Packard</i>             |     |
| Neal Jacobson, <i>Digital Equipment Corp.</i>                   |     |
| Richard A. Demers, <i>IBM</i>                                   |     |

|                          |     |
|--------------------------|-----|
| <b>TITLE INDEX</b> ..... | 335 |
|--------------------------|-----|

|                           |     |
|---------------------------|-----|
| <b>AUTHOR INDEX</b> ..... | 336 |
|---------------------------|-----|