ADVANCE PROGRAM

INTERNATIONAL CONFERENCE ON

RELIABLE SOFTWARE TECHNOLOGIES

ADA-EUROPE'96

JUNE 10-14, 1996
MONTREUX PALACE HOTEL
MONTREUX, SWITZERLAND

http://lglwww.epfl.ch/Ada-Europe/Conference/1996

Organization and Program Committees

The International Conference on Reliable Software Technologies (Ada-Europe'96) is sponsored by Ada-Europe, in cooperation with ACM SIGAda. It is organized by the Software Engineering Lab of the Swiss Federal Institute of Technology in Lausanne, Prof. Alfred Strohmeier and Stéphane Barbey; conference logistics are provided by the Convention and Tourist Office of Montreux, Switzerland.

Organization

Program Chair

Alfred Strohmeier, alfred.strohmeier@di.epfl.ch
Swiss Federal Institute of Technology in Lausanne (EPFL)
Department of Computer Science
Software Engineering Lab
CH-1015 Lausanne
Switzerland
Fax: +41 21 693 5079

Tutorial Chair

Stéphane Barbey, stephane.barbey@di.epfl.ch
(Same address as above)

PR Officer

Björn Källberg, bjkae@celsiustech.se

Exhibition Organizer

Peter E. Obermayer, obermayer@cci.de
Competence Center Informatik GmbH
Lohberg 10
P.O. Box 1225
D-49716 Meppen
Germany
Fax: +49 5931 805 100

Conference Logistics

Convention and Tourist Office
Ada-Europe'96
Rue du Théâtre 5
Case postale 1451
CH-1820 Montreux
Switzerland
Phone +41 21 962 84 84
Fax +41 21 963 78 95

Program Committee

Angel Alvarez, *Technical University of Madrid*
Lars Asplund, *Uppsala University*
Stéphane Barbey, *Swiss Federal Institute of Technology in Lausanne, Tutorial Chair*
Mark S. Gerhardt, *LORAL Space & Range Systems*
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GENERAL INFORMATION

The international conference of Ada-Europe, the European federation of national Ada societies, will take place this year at the Montreux Palace Hotel, Montreux, Switzerland, on the edge of beautiful lake Geneva, from June 10 to 14, 1996.

The conference provides an international forum for researchers, developpers and users of reliable software technologies to share current research, academic and industrial experiences. Presentations and discussions cover applied and theoretical work currently conducted to support the development and maintenance of reliable software systems. An exhibition will also showcase the latest products related to Ada and to the technologies for reliable software systems.

The conference comprises a three-day technical program and exhibition from Monday evening to Thursday, with workshops and tutorials scheduled on Monday and Friday.

THE WEEK AT A GLANCE

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(18h00-19h30)</td><td>Ada-Europe General Assembly

(18h00-19h00)</td><td></td><td></td><td></td></tr>
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CONFERENCE DESK OPENING HOURS

Sunday	17h00-19h00
Monday	8h00-20h00
Tuesday to Thursday	8h00-18h00
Friday	8h00-14h00

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TUTORIAL PROGRAM

The tutorial program covers a broad spectrum of topics. The tutorials have been selected to appeal to practitioners, managers, and researchers alike. They are all presented by renowned speakers from academia and industry.

TUTORIALS AT A GLANCE

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OOP with Ada95 and other gOODies

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OOP WITH ADA 95 AND OTHER GOODIES

by John Barnes, JB Informatics

This tutorial will cover the main features of the core of Ada 95 with strong emphasis on OOP and other interesting areas. The presentation will be organized around a number of examples chosen for the insight they give into the underlying concepts. Topics covered will include: when to dispatch and not to dispatch; using extension to encapsulate non local data; iterators; containers such as lists and trees; general access types and what access parameters and discriminants are for; the packaging of generic parameters; protected objects, tasks and discriminants; the hierarchical library.

Attendees should have an acquaintance with Ada 83 although in-depth knowledge is not required. It would be of benefit to have read one of the following: Part 1 of the Ada 95 Rationale; Highlights of Ada 95 in the Ada Year Book 1995; chapters 3 and 4 of Programming in Ada 95 by the presenter.

John Barnes is an independent consultant. A member of the original Ada design team, he worked closely with Intermetrics Inc. on the design of the revised International Standard, Ada 95; in particular he is the principal author of the Rationale document explaining the new Standard. He is also the author of "Programming in Ada" a well-known textbook on Ada published by Addison-Wesley which has been translated into six languages and is now in its fourth edition including coverage of Ada 95. The successor "Programming in Ada 95" which is a complete rewrite for Ada 95 was published in late 1995. John has been the head of the UK delegation to ISO regarding Ada since the standardization of Ada commenced in 1985. He is also Chairman of Ada UK and President of Ada-Europe.

OBJECT TECHNOLOGY PROJECT MANAGEMENT

by Richard T. Dué, Thomsen Dué and Associates, Ltd.

The key to the successful implementation of Object Technology systems development is the effective application of project management strategies and techniques. While the leading Object-Oriented analysis and design methodologies describe required outputs, tasks, techniques, and notations, they offer little guidance on estimating, scheduling, monitoring, risk analysis, contingency planning, and change management. Traditional project management approaches, however, offer little guidance for the unique requirements of the Object paradigm. This tutorial presents a overview of proven, practical approaches to the full-time job of managing Object Technology systems development projects.

This tutorial will especially benefit participants with formal Object-Oriented analysis and design methodology experience who are interested in effective approaches to project management.

Richard T. Dué, has over 30 years of Information Technology experience as a programmer, analyst, manager, consultant, teacher and author. This seminar is based on material found in his article, "The Changing Paradigm for Object Project Management", Object Magazine, July-August 1995 and his new Addison-Wesley book "Object Engineering".

REAL-TIME AND DISTRIBUTED FEATURES OF ADA 95

by Joyce L. Tokar, Tartan

Ada 83 introduced the concept of a process as a language construct called a task. Interprocess synchronization and communication was achieved through the use of the task rendezvous. This innovative approach generally addressed the real-time communities need for multiprocessing. However, the tight coupling of synchronization and communication introduced an unacceptable amount of execution time overhead. Hence, the use of tasks and rendezvous was limited. In addition, the runtime model was insufficient for distributed processing. Ada 95 introduces more efficient real-time multiprocessing capabilities; including improved shared data access, asynchronous event processing, and better timing capabilities. Ada 95 also defines packages and procedures to support multiple scheduling models, interrupt handling, and distributed processing. This tutorial will examine the enhancements to the Ada run-time model including: the protected type, the requeue operation, the asynchronous transfer of control statement, and the delay until statement. It will also address the special purpose features defined in the Systems Programming, Real-Time and Distributed System Annexes.

Tutorial attendees must have knowledge of Ada and the Ada runtime model.

Dr. Tokar is a principal member of Tartan's technical staff responsible for addressing issues related to Tartan's technology both with respect to Ada, Ada 95, C/C++ and Tartan's embedded technology. She is a chief runtime designer for Tartan. In 1992, she was appointed to the DoD's panel of Ada 9X Distinguished Reviewers. She also participates in the SIGAda ARTEWG (Ada Runtime Environment Working Group) and the Ada Rapporteur Group. Dr. Tokar holds a B.S. and M.S. in Computer Science from the University of Pittsburgh and a Ph.D. in Computer Engineering from Clemson University.

SOFTWARE ARCHITECTURE AND ITERATIVE DEVELOPMENT PROCESS

by Philippe Kruchten, Rational Software

This tutorial has two parts. Part 1 deals with the "why" and "what". We introduce the concept of software architecture, its boundaries, and its motivation. We propose a model to represent the architecture of software-intensive systems, using multiple views or blueprints. For each view: conceptual, dynamic, static, physical, we detail the elements involved, a view-specific notation, and its relations with other views. Part 2 deals with the "how" and "who". An iterative process is described to develop and validate a software architecture. We then examine the organizational aspects related to software architecture and in particular the role of an architect or an architecture team.

The tutorial is based on practical experience in the development of large, software intensive systems over the last fifteen years, and the examples are derived from telecommunication and air traffic control systems.

Attendees should have general notions of object-oriented technology, of software engineering in general, understanding of concurrency and distribution issues, and of the software development process. The tutorial is aimed a software professionals faced with the issues of designing large, unprecedented system, from scratch, using OO methods.

The tutorial was developed by Philippe Kruchten, Senior Technical Consultant at Rational, where he is in charge of the Software Architecture Practice Area. Philippe Kruchten has 20 years of experience of software development. He has been associated with several large-scale software-intensive projects around the world. Since August 1992, he has been the lead software architect for the Canadian Automated Air Traffic System, developed by Hughes Aircraft of Canada in Vancouver.

TASK SCHEDULABILITY ANALYSIS

by Vance Christiaanse, Cintech Consulting

This tutorial presents the basic principles of multi-tasking software design on a monoprocessor. It is intended for those with little or no previous experience designing with tasks. The tutorial will cover Ada 95 scheduling disciplines such as priority inheritance and priority ceiling locking for protected objects. Attendees will learn how to determine whether or not the tasks in a given design can meet hard deadline timing requirements.

The tutorial is intended for a technical audience, but no previous knowledge of Ada or tasking is assumed. It is intended for software developers and is also appropriate for individuals in management and project leadership

Vance Christiaanse has been designing real-time, embedded software products in Ada for twelve years. His training material on Ada tasking was used by many of the software engineers on a successful 2.5 million line embedded Ada project for the US Navy. He is currently working on an object-oriented, real-time database management system for the US Air Force.

WRITING JAVA™-COMPATIBLE APPLETS IN ADA 95

by S. Tucker Taft, Intermetrics, Inc.

This tutorial will introduce the attendees to writing Java(tm)-compatible applets in Ada 95.

Java(tm) is a new technology from Sun (see http://www.javasoft.com/) which allows small applications ("applets") to be automatically downloaded to a client machine as part of browsing an HTML Web page with a Java-enabled Web browser.

Sun has designed a new object-oriented language called "Java" as part of this technology, and provides a compiler to translate Java source programs into a byte-code representation (herein called "J-code") for secure and efficient transmission across the Internet. When a Java-enabled browser encounters a reference to a Java applet, the J-code for the applet is automatically downloaded and executed, giving it control over a specified part of the screen displaying the Web page. J-code is a platform independent byte-code, and is intended for efficient execution by an interpreter, or efficient on-the-fly translation to machine-code for execution by the client hardware. Although the source language Java and the Java byte code were designed hand-in-hand, it is still possible to map other programming languages to J-code, provided the underlying semantics of the languages match those of Java relatively well.

As it turns out, the semantics of Ada 95 fit remarkably well the underlying capability of J-code. Recognizing this, a group at Intermetrics is in the process of adapting our validated Ada 95 front end ("AdaMagic"(tm)) to directly generate J-code, allowing Java-compatible applets to be implemented in Ada 95.

This tutorial is designed for Ada 95 programmers who have some familiarity with the World Wide Web.

S. Tucker Taft has been actively involved with Ada since September 1980. From March 1990 to February 1995 Mr. Taft led the design team for Ada 9X, which we now know as Ada 95. He is chief scientist in the Cambridge office of Intermetrics, Inc., and is chief architect of Intermetrics' Ada 95 technology, called AdaMagic(tm).

INFORMATION SYSTEMS PROGRAMMING IN ADA 95

by Benjamin M. Brosgol, Thomson Software Products

One of the major objectives of Ada 95 was to address the requirements for developing Information Systems ("IS") applications, which in the past have typically been the domain for COBOL. Important requirements are: performing exact decimal arithmetic; interfacing with external software (in particular C and COBOL) and external data formats; producing formatted output for numeric data (so-called "Edited Output"), with control over currency string, sign, and other properties; and dealing with character and string data. Ada 95 has addressed these requirements through a combination of facilities found in the core language, the predefined library, the Interfaces Annex, and the Information Systems Annex.

This tutorial will summarize the IS-related facilities of Ada 95. Specific requirements underlying these features will be described, the semantics and rationale for important design decisions will be presented, and an extended example illustrating the Ada 95 functionality will be explained. Particular attention will be paid to the Edited Output package.

Some knowledge of Ada 83 would be helpful. No previous experience with Ada 95 is required.

Dr. Brosgol has been conducting Ada training since 1982 and has presented half-day and full-day Ada tutorials previously at many conferences, including AdaTec (1982), Ada Europe (1983, 1990), TRI-Ada (1993), WAdaS (1986, 1993), and the Software Technology Conference (1994). He conducts a variety of Ada-related courses for Thomson Software Products, including Programming in Ada 95, Real-Time Programming in Ada, Windows Programming with ActivAda, and many others.

Dr. Brosgol designed Ada 95's Information Systems-related facilities and is the liaison from WG9 (Ada) to WG4 (COBOL).

REAL-TIME POSIX

by Michael Gonzalez Harbour, Departamento de Electronica y Computadores Universidad de Cantabria, Spain

This tutorial discusses the main real-time operating system services defined in the POSIX standards. These services allow application developers to write portable applications that meet their real-time requirements. The tutorial reviews the different services from the perspective of an Ada application, and discusses which of the different options and services are more suitable for developing real-time applications in Ada.

Michael Gonzalez Harbour is an Associate Professor in the Department of Electronics and Computers at the University of Cantabria. He works in software engineering for real-time systems, and he is a co-author of "A Practitioner's Handbook on Real-Time Analysis". He has been involved in several projects using Ada to build real-time controllers for robots. Michael is an active member of the POSIX real-time working group. He is the Technical Editor of the IEEE POSIX.1j standard. He is also the technical reviewer for two chapters of the POSIX.1d standard.

Invited speakers will discuss the state of the art and what the future will offer in the area of reliable software development for real-time systems, distributed systems, and Internet applications.

The selected presentations will feature the four following talks:

PROGRAMMING THE INTERNET IN ADA 95

by S. Tucker Taft

(Monday 10 June, 18:15 - 19:15)

Periodically in the computer industry, a major shift occurs and the kind of computing being done changes in character. Accompanying such a shift, there is generally the emergence of a new "platform" on which this new computing takes place. In the 70's, the move was to minicomputers and workstations, and the "platforms" for this were generally Unix and VMS. In the 80's, the move was to PC's, and the predominant platform for this was the IBM PC running some variant of DOS or Windows. In the 90's, it looks like the move is to the Internet and the World Wide Web. The platform for this new kind of computing could very well be the Java(tm) technology recently announced by Sun.

Sun's Java technology includes a new object-oriented programming language called Java, a platform-independent representation for Java programs called Java "class" or "byte-code" files, an interpreter for this byte-code implementing what is called the Java "virtual machine" (VM), and a set of standard Java classes which support the development of graphical, networking, multithreaded, platform-independent "applets." Once compiled into a class file, an applet can be automatically downloaded by a Java-enabled Web browser, and run on the client's machine, interacting directly with the user, and possibly communicating back to the original server for additional data.

As it turns out, once an applet is compiled into a Java-compatible class file, it is irrelevant to a Web browser in what source language the applet was originally written. The definition of the Java VM imposes some limitations on what kinds of language can be supported, but fortuitously, the Java VM maps extremely closely to the semantics of Ada 95. Recognizing this, we at Intermetrics embarked on adapting our validated Ada 95 compiler front end, called "AdaMagic(tm)", to directly generate Java-compatible class files. This presentation will detail the mapping we have chosen between Ada 95 features and the capabilities of the Java VM at the byte-code level, as well as the mechanisms and conventions we use for achieving full interoperability between Ada 95 packages/types and Java packages/classes at the source code level.

S. Tucker Taft is Chief Scientist in the Intermetrics Software Technology Division and is currently Technical Director for development of Intermetrics' Ada 95 technology, called "AdaMagic"(tm).

Mr. Taft graduated from Harvard College in 1975 with a bachelor's in Chemistry, Summa Cum Laude, and then worked four years for Harvard in the student computer center, managing the first Unix system that was installed outside of AT&T. Thereafter he worked one year as a private consultant, and then in 1980 joined Intermetrics. While at Intermetrics, he participated in the development of the Ada Integrated Environment for the Air Force, a commercial C cross-compiler, the Common APSE Interface Set (CAIS), and an Ada binding to SQL (SAME). From 1990 to 1995, Mr. Taft led the Ada 9X language design team, culminating in the February 1995 approval of Ada 95 as the first ISO standardized object-oriented programming language.

RELIABILITY MODELING FOR SAFETY CRITICAL SYSTEMS

by Dr. Norman F. Schneidewind

(Tuesday 11 June, 8:30 - 9:30)

It is feasible to predict the software reliability and increase management's confidence in the reliability of safety critical software such as the NASA Space Shuttle Primary Avionics Software System (Shuttle flight software). These objective were achieved with our novel approach of integrating software safety criteria, risk analysis, reliability prediction, and a stopping rule for testing. This approach is applicable to other safety critical software. We encourage practitioners to apply this approach.

Only the safety of the software in a safety critical system is covered. Our concern is with reducing the risk of failures in the software, which could cause loss of life or mission, to an acceptable level. Thus, our use of the word safety refers to software safety and not to system safety. By improving the reliability of the software, where the reliability measurements and predictions are directly related to mission and crew safety, we contribute to system safety.

Remaining failures, total failures, test time required to attain a given fraction of remaining failures, and time to next failure are useful reliability measurements and predictions for: 1. providing confidence that the software has achieved safety goals; 2. rationalizing how long to test a piece of software; and 3. analyzing the risk of not achieving remaining failure and time to next failure goals. Having predictions of the extent that the software is not fault free (remaining failures) and whether it is likely to survive a mission (time to next failure) provide criteria for assessing the risk of deploying the software. Furthermore, fraction of remaining failures can be used as both an operational quality goal in predicting test time requirements and, conversely, as an indicator of operational quality as a function of test time expended.

Software reliability models provide one of several tools that software reliability managers of the Shuttle flight software are using to provide confidence that the software meets required safety goals. Other tools are inspections, software reviews, testing, change control boards, and perhaps most important -- experience and judgement.

Dr. Norman F. Schneidewind is professor of information sciences and director of the Software Metrics Research Center at the Naval Postgraduate School. He is the developer of the Schneidewind software reliability model which is used to assist in the prediction of software reliability of the NASA Space Shuttle. This model is one of the models recommended by the American Institute of Aeronautics and Astronautics and the American National Standards Institute "Recommended Practice for Software Reliability". Dr. Schneidewind is a Fellow of the IEEE, elected for "contributions to software measurement models in reliability and metrics, and for leadership in advancing the field of software maintenance".

FAULT-TOLERANCE BY REPLICATION IN DISTRIBUTED SYSTEMS

by André Schiper

(Wednesday 12 June, 8:30 - 9:30)

Dependability, i.e. reliability and availability, is one of the biggest trends in software technologies. In the past, it has been considered acceptable for services to be unavailable because of failures. This is rapidly changing: the requirement for high software reliability and availability is continually increasing in domains such as finance, booking-reservation, industrial control, telecommunication, etc. One obvious possibility is to build reliable software on top of fault-tolerant (replicated) hardware. This may indeed be a viable solution for some application classes, and has been successfully pursued by companies such as Tandem and Stratus. Economic factors have, however, motivated the search for cheaper software-based fault-tolerance, i.e. fault-tolerance by software-based replication. While this principle is readily understood, the techniques required to implement replication are surprisingly difficult to master.

The talk will concentrate on the techniques that have been developed, since the mid-eighties, to implement replicated services. These techniques consider process groups and group communication as the basic abstraction. A replicated service is encapsulated within a group and thus appears as a single entity with respect to the outside world. Interaction between processes within the group as well as those between the service and the client are implemented through group communication primitives, including reliable multicast with different message ordering guarantees. The Isis system developed at Cornell University, has pioneered this approach.

The talk will describe the various replication techniques (passive replication, active replication, coordinator-cohort replication), and the group multicast primitives needed to implement these replication techniques. Implementation of group multicast primitives will be briefly discussed, stressing the difficulty to guarantee the safety and liveness properties. Finally, the relationship between the group communication paradigm and classical quorum based techniques (e.g. static voting, dynamic voting), in regards to handling replication, will be mentioned.

André Schiper has been a professor of Computer Science at the EPFL since 1985, leading the Operating Systems laboratory. His current research interests are in the areas of fault-tolerant distributed systems. He has worked on the new implementation of communication primitives for the Isis system, developed at Cornell University. André Schiper has taken part in the ESPRIT Basic Research Projet BROADCAST, and is member of the CABERNET Network of Excellence in Distributed Systems. He is also partner in the new Esprit R&D project OpenDREAMS, whose objective is to integrate various technologies, including fault-tolerance by replication, within a CORBA infrastructure.

ADA 95: AN EFFECTIVE CONCURRENT PROGRAMMING LANGUAGE

by Alan Burns

(Thursday 13 June, 8:30 - 9:30)

The concurrency facilities within Ada 95 are more comprehensive than in any other language. Through a discussion of three case studies, this paper shows how the language abstractions supported by Ada can be combined to build effective higher-level abstractions. The three examples concern a concurrency problem, a fault tolerance requirement and a scheduling (real-time) issue. Together they illustrate that many of the criticisms that were rightly focused on Ada 83 have been addressed by the language revision.

Alan Burns is the Professor of Real-Time Systems in the Department of Computer Science, University of York, U.K. His research interests cover a number of aspects of real-time systems including the assessment of languages for use in the real-time domain, communications distributed operating systems, the formal specification of scheduling algorithms and implementation strategies. Professor Burns has authored, or co-authored, over 200 papers and reports, and eight books. Many of these are in the real-time area. He has work and writen extensively on Ada.

TECHNICAL PROGRAM

Besides the invited speeches, the Ada-Europe'96 technical program contains almost forty presentations on the most important trends in software technologies, and more specifically on reliable systems. Among the presentations, some will describe the use of object-oriented methods for specific problems such as the implementation of distributed systems, or testing. Moreover, you will hear experience reports and case studies describing the problems encountered and the solution found for the development of large software, and the application of software development methods to enhance software quality. The proceedings will be printed in the famous Lecture Notes of Springer (LNCS), and be available at the start of the conference.

There will be sessions on:

- Software Development Methods
- Verification and Validation
- Safety & Security
- Real-Time Systems
- Distributed Systems
- The Ada 95 Programming Language
- Compilers and Tools
- Interfacing with Other Worlds
- Experiences Reports

ACCEPTED SUBMISSIONS

SOFTWARE DEVELOPMENT METHODS

Mapping HRT-HOOD Designs to Ada 95 Hierarchical Libraries
Juan A. de la Puente, Alejandro Alonso, Angel Alvarez

An Approach to Increasing Software Component Reusability in Ada
Hyoseob Kim, Cornelia Boldyreff

Iterative Software Development for Large Ada Programs
Philippe Kruchten, Christopher J. Thompson

HCSD Unit Developement Process: Step-Wise Process Improvement
David Emery, Jaswinder S. Madhur

VERIFICATION AND VALIDATION

Testing Ada 95 Programs for Conformance to Software Architectures
Neel Madhav

Tasking Deadlocks in Ada 95 Programs and their Detection
Jingde Cheng, Kazuo Ushijima

On Some Characterisation Problems of Subdomain Testing
T. Y. Chen, Y. T. Yu

A Framework for Testing Object-Oriented Software Using Formal Specifications
Rohan Fletcher, A. S. M. Sajeev

SAFETY & SECURITY

The Use of Ada in Critical Systems, such as the TGV
Marc Richard-Foy, Gilles Le Goff, Hervé Legall

Ada 95 and Critical Systems: An Analytical Approach
Dan Craigen, Mark Saaltink, Steve Mitchell

Use of a Static Analysis Tool for Safety-Critical Ada Applications: A Critical Assessment
Alfred Rosskopf

DISTRIBUTED SYSTEMS

Secure Communication in Distributed Ada
Jörg Kienzle, Thomas Wolf, Alfred Strohmeier

Using Object-Oriented Methods in Ada 95 to Implement Linda
Kristina Lundqvist, Göran Wall

Shared Packages Through Linda
Göran Wall, Kristina Lundqvist

Drago: An Ada Extension to Program Fault-Tolerant Distributed Applications
Angel Alvarez, Francisco J. Miranda, Sergio Averalo, Francisco J. Guerra

REAL-TIME SYSTEMS

The Dining Philosophers in Ada 95
Benjamin M. Brosgol

Using Ada 95 for Prototyping of Real-Time Systems
Jorge Real, Agustin Espinosa, Alfons Crespo

The GNARL Implementation of POSIX/Ada Signal Services
Dong-Ik Oh, Ted P. Baker, Seung-Jin Moon

Implementing Protected Types on Embedded Targets
David Mundie, John Fardo

COMPILERS AND TOOLS

ASIS-for-GNAT: From the Prototype to the Full Implementation
Sergey Rybin, Alfred Strohmeier, Eugene Zueff, Vasily Fofanov, Alexey Kuchumov

Handling Irregular Grammars in Ada
Drasko Sotirovski, Philippe Kruchten

Interprocedural Call Optimization
Tim Birus, Christine Cipriani, Dean Sutherland

THE ADA 95 PROGRAMMING LANGUAGE

Augmenting Ada 95 With Additional Real-Time Features
Johann Blieberger, Roland Lieger, Bernd Burgstaller

Beyond Ada 95: The Addition of Persistence and its Consequences
Michael Oudshoorn, Stephen Crawley

Extending the Object-Orientedness of Ada 95
Bernd Holzmueller

An Ada 95 View of Some Difficult or Controversial Points in Object-Oriented Programming
Patrick de Bondeli

Where does GOTO go to?
Wolfgang Gellerich, Markus Kosiol, Erhard Ploedereder

INTERFACING WITH OTHER WORLDS

Ada/O2 Coupling: A Solution for Efficient Management of Persistence in Ada 83
Thierry Millan, Pierre Bazex

Interoperability of C++ Classes and Ada Tagged Types
Robert Dewar, Cyrille Comar

An Ada 95 Harness for Converting Legacy Fortran Applications
B. Gliss

EXPERIENCE REPORTS

The Funds Management Modernization: Experiences with Developing an Object-Oriented, Client-Server Management Information System in Ada 95
Chad Bremmon

Converting the Part Task Nautical Simulator to Ada 95
Kor Molenmaker

Visibility Control and Migration of Interfaces in Large Ada Systems
Vincent Celier

Ada Tasking and Dynamic Memory: To Use or Not To Use, That's a Question
Philippe Waroquiers

Experiences Applying a Practical Architecture Method
David E. Emery, Richard F. Hilliard II, Timothy B. Rice

A Decade of Development and Deployment of Distributed Ada Systems
John D. Smart

Planning the Transition to Ada 95 for a Large Real-Time Project
Roland Feith, Michael Tonndorf

PANELS

ASIS PANEL

Co-chaired by Mr. Currie Colket, Chairman ASIS Working Group/Chairman ASIS Rapporteur Group, and Dr. Sergey Rybin, Moscow State University.

The ASIS Panel will address the new ASIS specification to support Ada 95, its use in developing CASE tools, and ASIS resources available. It will provide an opportunity to discuss issues and technical solutions concerning the building of CASE tools using ASIS with those who have already done so.

THE BUSINESS CASE FOR ADA

Chaired by Bob Mathis, Executive Director, Ada Resource Association, with the participation of Robert Dewar, President, Ada Core Technologies, USA, Rudolf Landwehr, CCI, Germany, and Nasser Kettani, Rational Software, France.

Ada has proven itself in many situations, but it is still not being used in many other situations where its proponents think it would provide a superior technology and an improved solution. This panel will discuss some of the different factors that go into evaluating programming languages for use in different business contexts. The panelists will also discuss the different perspectives that exist in different countries.

Specific factors to be discussed include when and why software development managers make decisions about programming languages, level of familiarity with different programming languages, and importance of factors like reliability, ability to handle large programs, speed of running programs, language standardization, clarity of source code, reuse of code or designs, maintenance and support costs, portability of programs, client-server support, support for modern software engineering methods, object-oriented programming support, life cycle costs, initial costs, compile speed, global acceptance, popularity in an industry segment, and government use.

Workshops

Design Patterns for Active Objects

(full day, Monday)

Organizers: Mark Gerhardt, Loral Space and Range Systems, Gerhardt_Mark@srs.loral.com, and Rich Hilliard, The MITRE Corporation, rh@mitre.org

Active objects are objects that have or use a thread of control as a part of their state. The purpose of this workshop is to provide a forum for workers interested in formulating and discussing design patterns using active object techniques in Ada 95 (its features for full object-oriented programming, concurrency, and distribution). Prospective attendees are required to submit a position paper.

Design and Coding Guidelines for Ada 95

(half-day, Thursday afternoon)

Organizer: Philippe Kruchten, Rational Software, pkruchten@rational.com

The objective of this workshop is to present and discuss guidelines for the use of Ada features, and preferably Ada 95 features. Attendance to the workshop is by invitation only. The selection of participants will be based on the submission by candidates of 2 proposed guidelines.

Participation

More information on the workshops can be found on the WWW server of the conference. For participation in a workshop, please contact the workshop organizer.

Social Events

Banquet

A banquet will be held at the “Château du Châtelard”.

The castle Châtelard has been built in 1441 as a defence tower during the Burgundy wars. This private property is a famous wine-growing center. The terrace with its view over the whole Lake of Geneva is an ideal place for Aperitives. The banquet, with trumpets and candlelight, will be an unforgettable event!

The Banquet package includes:

- Transportation to and from the Castle,
- The aperitive, with the “Vin du fût” and “pains aux greubons, au cumin et au lard”
- The meal (fine french cooking, including cheese and dessert)
- Unlimited wine
- Coffee and liqueur (à volonté)

Schedule

18h45	Bus Departure for Banquet
19h00-23h30	Banquet at the “Château du Châtelard”

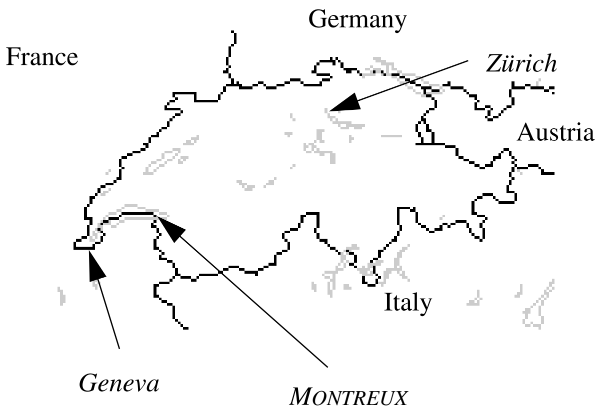
TRAVEL INFORMATION

Montreux is situated on the shores of the Lac Léman - Lake Geneva- in the French-speaking part of Switzerland, less than 40 km from Lausanne. Surrounded by mountains, protected from cold winds, and with palms and other exotic trees and plants lining its shores, Montreux is known as the "Pearl of the Swiss Riviera".

ACCESS ROUTES AND LINKS

• By Air

Geneva is the nearest airport. Direct trains to Montreux depart every hour from the train station within the airport. Travel time is approximately one hour. Montreux can also be reached by train from Zürich International Airport in about 3 hours.



• By Rail

Direct trains from Paris, Milan, Rome. Connections in Basel, Bern or Zürich with intercity lines from Germany, Benelux and Scandinavia via Lausanne.

• By Road

Freeway, Montreux exit.

CONFERENCE REGISTRATION AND HOTEL RESERVATION

To register for the conference or to reserve a hotel room, please fill out the enclosed forms and return them by postal mail or fax them to the Convention and Tourist Office of Montreux.

CONVENTION AND TOURIST OFFICE

Ada-Europe'96
Rue du Théâtre 5
Case postale 1451
CH-1820 Montreux
Switzerland
Phone +41 21 962 84 84
Fax +41 21 963 78 95

Please note that the conference organizers will not answer questions regarding conference registration and hotel reservation. Direct your questions to the Convention and Tourist Office.

All prices on the forms are given in CHF (Swiss francs).

HOTELS

All rooms include breakfast and hotels are within walking distance (10 mins max.) of the conference facilities. Prices are in CHF (Swiss Francs), per room and per night, VAT and service included. Please make your reservation as soon as possible. After May 24, some categories may be sold out. The conference will be held at the Montreux Palace. The ARG meeting will take place in the Eurotel Riviera.

ADA-EUROPE'96 CONFERENCE
RELIABLE SOFTWARE TECHNOLOGIES

JUNE 10-14, 1996, MONTREUX, SWITZERLAND

Return or fax this form to:
Convention & Tourist Office
P.O. Box 1451
CH - 1820 Montreux - Switzerland
Tel. : + 41 21 962 84 84
Fax : + 41 21 963 78 95

CONFERENCE REGISTRATION FORM

Please Print or Type

Name : .... Surname : ....

Company : ....

Address : ....

Postal Code : .... City : .... Country : ....

Phone : .... Fax : ....

Badge (name) .... (company) ....

Events (Select (tick) events you want to register to. All prices are given in CHF (Swiss Francs).)

Conference (including breaks and lunches)		Normal Price	On or Before May 10, 1996	**Tutorials**		Normal Price	On or Before May 10, 1996
Full Conference		800 ❍	700 ❍	Barnes	Monday all-day	500 ❍	400 ❍
Academics		800 ❍	500 ❍	Dué	Monday all-day	500 ❍	400 ❍
One Day	Tuesday	400 ❍		Tokar	Monday all-day	500 ❍	400 ❍
	Wednesday	400 ❍		Kruchten	Friday, all-day	500 ❍	400 ❍
	Thursday	400 ❍		Christiansee	Friday morning	250 ❍	200 ❍
Banquet at the *Castle of Chatelard* (specify number of attendees)		130 (each) ___		Taft	Friday morning	250 ❍	200 ❍
Workshops				Brosgol	Friday afternoon	250 ❍	200 ❍
Patterns for active objects Monday all-day		150 ❍		Gonz.-Harbour	Friday afternoon	250 ❍	200 ❍
Design and Coding Guidelines Thur. aft. (free with conf. reg.)		100 ❍		**Additional Conference Proceedings** (specify number)		80 (each) __	
Total (Conference, Workshops, Tutorials and Additional Proceedings)						CHF	

Payment

❍ Cheque in CHF (Swiss Francs) drawn on a Swiss bank is attached

❍ Bank transfer to Banque Cantonale Vaudoise, CH-1820 Montreux, Switzerland - Clearing 767.222
Account : Ada-Europe'96 N^{o} 909'29.13. Kindly ensure that your name and your company are clearly indicated.

❍ **Credit card :** ❍ American Express ❍ Eurocard/Mastercard ❍ Visa
Card No : .... valid through : ....

Your registration will be considered valid as from the date of receipt of your payment, which will be acknowledged by the Convention & Tourist Office of Montreux.

Cancellation : MUST be in writing; an administrative fee of CHF 100.- will be applied to ALL cancellations. All refunds will be made following the conference. NO REFUND WILL BE MADE FOR CANCELLATIONS POSTMARKED AFTER MAY 17, 1996

Remarks (presentation of paper/tutorial, special conditions, vegetarian meals, ...)

....

Place and date : .... Signature : ....

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CH - 1820 Montreux - Switzerland
Tel. : + 41 21 962 84 84
Fax : + 41 21 963 78 95

HOTEL RESERVATION FORM

Please Print or Type

Name : . . . . Surname : . . . .

Company : . . . .

Address : . . . .

Postal Code : . . . . City : . . . . Country : . . . .

Phone : . . . . Fax : . . . .

Please indicate (tick) the room you wish to reserve in the hotel of your choice. (After May 24, some categories may be sold out.)

Hotel	Single room			Double room		
Montreux Palace 5*	CHF	280.--	❍	CHF	400.--	❍
Eurotel Riviera 4*	CHF	190.--	❍	CHF	250.--	❍
Bon Accueil 3*	CHF	150.--	❍	CHF	180.--	❍
Bon-Port 3*	CHF	130.--	❍	CHF	180.--	❍
Inexpensive accommodation	CHF	60.-- to 110.--	❍	CHF	120.--	❍

Arrival Date : . . . . Departure Date : . . . .

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All rooms include breakfast and hotels are within walking distance (10 mins max.) of the conference facilities.
Prices are in CHF (Swiss Francs), per room and per night, VAT and service included.

The Convention & Tourist Office of Montreux will confirm your reservation. No deposit required. Please indicate the full details of your credit card in order to guarantee your room :

❍ American Express ❍ Eurocard/MasterCard ❍ Visa

Card No. : . . . . Valid through : . . . .

Place and date : . . . . Signature : . . . .

EXHIBITION

The conference will be accompanied by a three-day commercial exhibition on June 11, 12 and 13. Vendors of software products and services should contact the Exhibition Organizer at the earliest convenience for further information and to ensure their inclusion.

The exhibition will take place in the Montreux Palace Hotel in Room Léman A. It will be opened Tuesday morning in the first coffee break and be closed Thursday afternoon.

PROSPECT EXHIBITORS

- Addison-Wesley
- ACT Europe
- AJPO
- Cadre Technologies
- Competence Center Informatik GmbH
- CRI
- Dassault Electronique
- DDC-I
- Intermetrics
- GSE Gesellschaft für Software-Engineering mbH
- CISI
- Mark V
- OCS
- OIS
- Prentice-Hall
- Rational
- Sema Group
- SGI
- Springer Verlag
- Tartan
- TLD Systems Ltd.
- Thomson Software Products

If your company, or a company that you would like to meet at Ada-Europe'96 , does not figure in this list, and you want to be present at Ada-Europe'96 , please contact the exhibition organizer, Peter E. Obermayer; his full address is listed on page 2.

JOINT EVENTS

- ARG Meeting (June 15-17 (Sat-Mon), Eurotel Riviera 4*)
- ISO WG9 (Friday, June 14)
- ASIS Working Group (Monday, June 10)
- Ada-Europe General Assembly (Tuesday, June 11, 18:00-19:00)

The ARG and ISO meetings are by invitation only.

GETTING MORE INFORMATION...

ADA-EUROPE'96 ON THE WORLD-WIDE WEB

If you have access to the World Wide Web, please access the conference home page at

`http://lglwww.epfl.ch/Ada-Europe/Conference/1996/`

ADA-EUROPE'96 MAILING LIST

To get information on updates to the program, you can register your e-mail address by sending a message to `ae96-info@lglsun.epfl.ch`. You will get up-to-date information by e-mail whenever available.