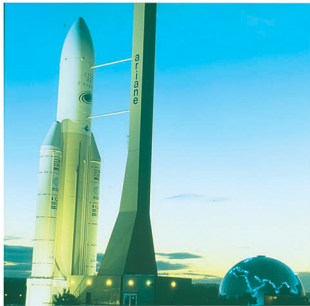




# Ada-Europe'2003

## 8<sup>th</sup> International Conference on Reliable Software Technologies



Toulouse, France, June 16-20, 2003  
ADVANCE PROGRAM

UNIVERSITÉ  
PAUL  
SABATIER



TOULOUSE III



<http://www.ada-europe.org/conference2003.html>

# > > Preliminary Program

The information presented here is preliminary - please refer to the conference web site for the latest details

In 2003, the 8th International Conference on Reliable Software Technologies will take place in Toulouse, France, from 16 – 20 June. The conference offers a technical program and exhibition, plus a series of tutorials and a workshop.

The conference provides an international forum for researchers, developers and users of reliable software technologies. Presentations and discussions cover applied and theoretical work currently carried out to support the development and maintenance of software systems.

The program includes papers by the international community with refereed contributions from many countries. The proceedings of the conference will be published in the Lecture Notes in Computer Science (LNCS) Series by Springer. An exhibition concurrent to the conference offers an opportunity to explore the latest developments on the commercial marketplace. The tutorials on Monday and Friday offer an excellent opportunity to obtain in-depth knowledge of important technologies in the field.

With around 400 000 inhabitants, Toulouse is the fourth largest metropolitan area in France and the main city of the Midi-Pyrénées region, situated in the South West of France. Toulouse has a rich historical past, having been founded during the period of the Roman empire, 24 centuries ago.

A great number of monuments and buildings bear witness to this great past, the most famous being the Capitole and square where the city hall and tourist office are located and not forgetting St Sermin, the romanesque basilica, the Jacobin monastery with its glorious Gothic vaults, the Pont Neuf and other bridges, mansions, etc.

Modern Toulouse looks resolutely towards the future with particular involvement in the aviation and space industries. The most important aeronautical site in Europe is located here with 150 acres being devoted to the construction of the Airbus aircraft.

Toulouse hosts CNES, the French national center for space research which is in charge of preparing and developing space projects. The headquarters of France Météo, the French Meteorological Office, is located in Toulouse. The Cité de l'Espace, the city's Space Museum, is full of information and interactive exhibitions to discover the universe, admire the Mir station, view a full-sized Ariane 5 rocket, etc.

Toulouse is a city of research with three universities, fourteen prestigious university-level colleges and many research centers.

Toulouse also offers a number of cultural attractions such as museums (the Archeological museum, Asian museum, museum of Modern Art containing a theatre curtain painted by Picasso, museums devoted to the resistance movement, medicine), art and photographic galleries, etc.

## Overview of the Week

	Morning	Late Morning	After Lunch	Afternoon
Monday June 16th Tutorials	The Personal Software Process for Ada : <i>D. Roy</i>			
	Developing High Integrity Systems with GNAT/ORK : <i>J. A. de la Puente &amp; J. Zamorano</i>			
	Implementing Design Patterns in Ada 95 : <i>M. Heaney</i>		Principles of Physical Software Design in Ada 95 : <i>M. Heaney</i>	
Tuesday June 17th Sessions & Exhibition	An Invitation to Ada 2005 Invited talk <i>P. Leroy</i>	Ravenscar	Static Analysis	Ada-Europe General Assembly
		Language Issues	Vendor presentations	
Wednesday June 18th Sessions & Exhibition	Aspect-Oriented Programming beyond Hierarchical Modularity Invited talk <i>M. Mezini</i>	Distributed Information Systems	Software Components	Formal Specification
		Metrics	Vendor presentations	Vendor presentations
Thursday June 19th Sessions & Exhibition	Software Fault Tolerance : An Overview Invited talk <i>J. Kienzle</i>	Real-Time Kernel	Real-Time Systems	Closing Session & Awards
		Testing	Vendor presentations	
Friday June 20th Tutorials & Workshop	Hight Integrity Ravenscar using SPARK : <i>P. Amey</i>		Architecture Centric Development using Ada and the Avionics Architecture Description Language : <i>B. Lewis &amp; E. Colbert</i>	
	A Semi Formal Approach to Software Systems Development : <i>W. Bail</i>		An Overview of Statistical-Based Testing : <i>W. Bail</i>	
	Workshop: Quality of Service in Component-Based Software Engineering (QoS in CBSE 2003)			

Each day, sessions start at 9:00 and end at 18:00.

# > > Invited Speakers

## An Invitation to Ada 2005

Tuesday June 17th, morning



Pascal Leroy  
Principal Software Engineer  
Rational Software Corp.  
France

### Abstract

In 2000, the ISO technical group in charge of maintaining the Ada language started looking into possible changes for the next revision of the standard,

around 2005. Based on the input from the Ada community, it was felt that the revision was a great opportunity for further enhancing Ada by integrating new programming practices, e.g. in the OOP area; by providing new capabilities for embedded and high-reliability applications; and by remedying annoyances encountered during many years of usage of Ada 95. This led to the decision to make a substantive revision rather than a minor one.

This keynote will outline the standardization process and schedule, and give a technical presentation of a number of key improvements that are currently under consideration for inclusion in Ada 2005.

### Biography

Pascal Leroy is a Principal Software Engineer with Rational Software Corp., and the chairman of the ISO Ada Rapporteur Group, the expert group in charge of revising and maintaining the Ada standard. He has more than 18 years experience in Ada and has been involved in language design, in compiler and tool development and in consultancy with very large Ada projects, notably in the area of command and control systems. Pascal holds degrees from Ecole Polytechnique and Ecole Nationale des Telecommunications in Paris, France.

## Aspect-Oriented Programming Beyond Hierarchical Modularity

Wednesday June 18th, morning

Mira Mezini  
Darmstadt University of Technology  
Germany



### Abstract

Aspect-oriented programming (AOP) is a new technology targeted at modularizing so-called crosscutting concerns. While the hierarchical modularity mechanisms of object-oriented and procedural programming have been very useful, they lack support for modularizing concerns whose modular structures are not hierarchical but rather crosscutting in nature. Failure handling strategies, security checking, and policy enforcement are a few examples of concerns, whose implementation crosscuts the modular structure of an object-oriented software system that is organized

around the key abstractions of an application domain. AOP provides language support that allows crosscutting structure to be explicit, clear and composable. This enables crosscutting aspects to be programmed in a modular way, resulting in the usual benefits of better modularity. In this talk the fundamental ideas of AOP and some works in the field will be presented and open issues will be discussed.

### Biography

Mira Mezini is a full professor of computer science at Darmstadt University of Technology in Germany, where she leads the software technology group. She holds a PhD (Dr.-Ing.) from the University of Siegen, Germany. Prior to joining Darmstadt University of Technology, she was an assistant professor of computer science at Northeastern University, Boston, MA.

Her current research interests are in design and implementation of languages with powerful modularization capabilities, aspect-oriented programming, design patterns and frameworks, component-oriented software development and adaptable component middleware.

## Software Fault Tolerance: An Overview

Thursday June 19th, morning

Jörg Kienzle  
McGill University  
Canada



### Abstract

The scope, complexity, and pervasiveness of computer-based and controlled systems continue to increase dramatically, and hence the consequences of such systems failing can be considerable. Ideally, the processes by which the software controlling such systems is created, analyzed, designed, implemented and tested would have advanced to the point where software could be developed without errors. Although significant progress has been achieved in recent years, and even if the best people, practices, and tools are used, it would be very risky to assume that the software developed is error-free.

This talk presents an overview of the techniques that can be used by developers to produce software that can tolerate design faults and faults of the surrounding environment. After reviewing the basic terms and concepts of fault tolerance, the best-known fault-tolerance techniques exploiting software, information and time redundancy are presented. The most important features of Ada 95 and other programming languages that can be of help when implementing fault tolerance are reviewed, and their usefulness is illustrated by examples.

### Biography

Jörg Kienzle is assistant professor in computer science at McGill University in Montreal, Canada, where he is leading the Software from the Swiss Federal Institute of Technology in Lausanne (EPFL). His current research interests include fault tolerance, software development methods, distributed systems and aspect-orientation.



# > > Tutorials

## The Personal Software Process for Ada

Monday June 16th, all day T1



Daniel Roy  
Software Technology, Process &  
People (STPP)  
USA

### Abstract

For the last several years, SEI Fellow Watts Humphrey, in conjunction with the SEI process program, has been developing techniques to help software engineers better manage and control

their work while improving their personal skills and capabilities. This body of work is referred to as the Personal Software Process.

The Personal Software Process (PSP) is a scaled-down version of an industrial (CMM-like) software process that is suitable for individual use. The goal of the PSP is to make software engineers aware of the processes they use to do their work and the performance of those processes. Software engineers set personal goals, define methods to be used, measure their work, analyse the results, and adjust their methods to meet their goals.

### Biography

Daniel Roy is President of Software Technology, Process and People (STPP) Inc., a training and consulting company specializing in the institutionalization of disciplined software engineering practices at the individual and team levels.

Dan Roy has 28 years experience in the development of biomedical and space systems (hardware and software). He worked for twelve years with major contractors such as General Electric and Loral at the NASA Goddard Space Flight Center. During this period he was fortunate to be exposed to and even, at times, to participate in the landmark work of the Software Engineering Laboratory (SEL). He worked at Carnegie Mellon University, Software Engineering Institute (SEI) for five years until December 1994. While at SEI, Dan led the real-time embedded systems tested project. Dan's interests include methodologies, risk management, process (from the Personal Software Process (PSP) to Capability Maturity Model (CMM) assessments), the People-CMM, and the psychological aspects of change management. Dan Roy has retained close ties with the SEI where he still teaches and consults as a visiting scientist. In particular, he is a regular teacher of the SEI "train the trainer" course for the Personal Software Process and he has been selected by SEI to verify and approve the French translation of CMM and CBA-IP1 material. In January 1997, SEI and STPP signed a Cooperative Research and Development Agreement (CRADA) to commercialize the PSP. Since then, Dan has been involved in the delivery of various SEI PSP products and the on going trials of the Team Software Process (TSP) in Europe, the US and in India. With a customer base spanning 10 countries, Dan has also worked with various world class software engineering institutes such as the Centre de Recherche Informatique de Montreal (CRIM) in Canada, the Norwegian Computing Center (NR), the Swedish Institute for Systems Development (SISU), the Institut d'Ingénierie International (IN3) in Paris, the Centro Internacional de Tecnológica de Software (CITS) in Brazil, and the European Software Institute (ESI) in Spain. Dan is co-author

of the book "Meeting Deadlines in Hard Real-Time Systems" (Briand-Roy) published by IEEE in 1999. He is a senior member of the Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Computer Society, a member of the Association for Computing Machinery (ACM), and a senior member of the American Institute of Aeronautics and Astronautics (AIAA). He has served as chairman of several Ada conferences and as chair of the ACM SIGAda Performance Issues Working Group (PIWG) and Safety and Security Working Group. He is also a trained evaluator for the accreditation visits of the Computer Science Accreditation Board (CSAC/CSAB), a 1997 senior examiner for Q-NET (Pittsburgh Chamber of Commerce Baldrige-like award) and a qualified user of the Myers-Briggs Type Indicator (MBTI).



Juan Antonio de la Puente

## Developing High Integrity Systems with GNAT/ORK

Monday June 16th, all day T2

Juan Zamorano  
Technical University of Madrid  
Spain

### Abstract

The Ravenscar profile is a subset of Ada tasking that enables the development of high integrity systems on top of a reduced, reliable run-time kernel. The Ravenscar subset removes all non-deterministic features from Ada tasking in order to enable static analysis and response time analysis to be performed on Ada programs. The Ravenscar subset includes static tasks (with no entries) and protected objects (with at most one entry), a real-time clock and delay until statements, as well as protected interrupt handler procedures and other tasking related features. ORK is a free real-time kernel that supports the execution of Ravenscar Ada programs on ERC32 (a radiation-hardened version of the SPARCv7 architecture) and PC targets. It is fully integrated in the GNAT programming environment, as a combined GNAT/ORK cross-compilation system which can be used to develop embedded applications on stand-alone computer boards. The tutorial will describe the main aspects of the Ravenscar profile, its interactions with other Ada features which are relevant for developing high integrity systems, and will give hints on programming schemes based on the profile. It will also describe the main features of GNAT/ORK, and the details on how to use it as a programming environment for embedded real-time systems.



### Biography

Juan Antonio de la Puente is a full professor at the Technical University of Madrid (UPM). He has been teaching Ada and Real-Time systems for more than 15 years, and is project manager for the ORK project at UPM.

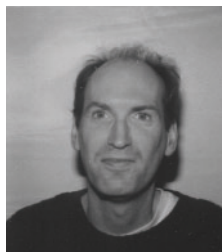
Juan Zamorano is a professor at the Technical University of Madrid, with more than 15 years experience in teaching real-time systems and systems architecture. He is the technical manager of the ORK project, and is responsible for ORK maintenance at UPM.



## Implementing Design Patterns in Ada 95

Monday June 16th, morning T3

Matthew Heaney  
On2 Technologies  
USA



### Abstract

A design pattern is a description of how a group of objects collaborate to solve a general problem in a specific context. Although Ada is a feature-rich language, it is sometimes not obvious how to actually implement many design patterns, and knowledge of certain advanced language features is often necessary. Accordingly, I present several idioms for object-oriented programming in Ada95, such as using controlled types and smart pointers to perform memory management, and using access discriminants to implement Java-style interface types.

## Principles Of Physical Software Design in Ada 95

Monday June 16th, afternoon T4

### Abstract

In this tutorial Matthew Heaney will discuss issues concerning the compilation of large software systems, and will present many techniques for ameliorating the problems. Most texts on software design concentrate almost exclusively on logical design, and provide only a cursory explanation of physical design. Discussions about types and objects are important, but there are also many pragmatic compilation issues that cannot be ignored. Unless care is taken, dependencies among modules often force a substantial recompile when seemingly innocuous changes are made. This can stymie development, especially for large systems that require hours (or even days) to rebuild.

### Biography

Matthew Heaney has been programming in Ada over 15 years, and has designed several large, real-time systems in Ada. He originally learned design patterns by converting all the C++ examples in the Gamma book to Ada95, and now he uses them on real projects.

## High-integrity Ravenscar Using SPARK

Friday June 20th, morning T5



Peter Amey  
Praxis Critical Systems  
UK

### Abstract

SPARK is a well-established, unambiguous and fully-analysable annotated subset of Ada. In its original form SPARK excluded all forms of concurrency because weaknesses in the Ada tasking model made it incompatible with the design

goals of SPARK. The advent of the Ravenscar Profile has provided an opportunity to extend SPARK to include concurrency and to enable the SPARK Examiner to analyse concurrent programs. The tutorial will describe the way SPARK has been extended to include the Ravenscar Profile and how static analysis techniques can eliminate all of the erroneous behaviour, bounded errors and implementation- defined behaviour that remain in the concurrency model defined by the Profile.

### Biography

Peter Amey is an aeronautical engineer by original professional training and achieved Chartered Engineer status through the Royal Aeronautical Society. He served as an engineering officer in the Royal Air Force and spent several years at the Boscombe Down test establishment working on the certification of aircraft armament systems. Peter joined Program Validation Limited to develop the high-integrity language SPARK and its support tool the SPARK Examiner and continues that work today with Praxis Critical Systems. As well as developing SPARK he has used it on major programmes including Tornado, Eurofighter and the Lockheed C130J.

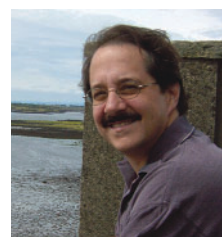
Peter teaches SPARK and Ada on a regular basis and has lectured widely on the development of critical systems. Most recently this has included the keynote address "Logic versus Magic" at Ada Europe 2001, "Closing the Loop: the Influence of Code Analysis on Design" at Ada Europe 2002 and the paper "A Language for Systems not Just Software" at SIGAda 2001. Peter has also had a well-received article published in Crosstalk.

## Architecture Centric Development Using Ada and the Avionics Architecture Description Language

Friday June 20th, afternoon T6



Bruce Lewis  
US Army's Aviation and Missile  
Command  
USA



Ed Colbert  
Absolute Software Co. Inc.  
USA

### Abstract

This tutorial will describe an architecture centric approach to developing and evolving reliable systems using the Avionics Architecture Description Language (AADL). The AADL is being standardized under the Society of Automotive Systems, Aerospace Avionic Systems Division. It is an ADL specifically developed for time critical, reliable applications. It supports building multiprocessor, fault tolerant, multi-level safety critical systems. It was developed for the avionics domain but useful in many real-time domains including space, automotive, industrial etc. UML is a widely used object orient general purpose software specification language. The AADL UML profile is being developed and will allow UML specification and tools to be used.



The tutorial will cover concepts, architecture centric development process, language overview, example specification, hardware and software components, Ada component integration, modeling and analysis as well as an overview of the UML profile.

## Biography

Bruce Lewis is a senior experimental developer for the US Army's Aviation and Missile Command, Research, Development and Engineering Laboratory. His work has focused on real time systems, Ada, software engineering, software architecture and system evolution since 1989. He has served as the government lead on various DARPA projects including those related to development of a real-time Architecture Description Language. He is the chairman of the international Avionics Architecture Description Language standardization committee.

Mr. Lewis has presented tutorials and presentations at several previous SigAda and AdaEurope meetings. He has presented tutorials related to architecture description language at the last 4 Digital Avionics Systems Conferences, both half and full day as well as at the International Reuse Conference and Tools USA 2000. He was a co-presenter and chair of a full tutorial and Avionics Architecture Description Language Seminar held in Toulouse in Oct of 2002, which drew 85 engineers. He was an instructor in the Air Force in electronics.

Ed Colbert is consulting with U.S. Army Aviation & Missile Command, and Honeywell Technology Center, on the definition of the Avionics Architecture Description Language (AADL) for the Society of Automotive Engineers (SAE). He is also lecturing in the Computer Science Department of the University of Southern California on software engineering and architectures, and contributing to the Model-Based Software Engineering (MBASE) method of the USC Center for Software Engineering. Ed has been teaching object-oriented methods, software engineering, and the Ada programming language since 1982, and since 1986 consulting as well. He created the Colbert Object-Oriented Software Development method ("OOSD"), which supports analysis and design for implementation in languages such as Ada, C++, and SmallTalk. NASA Langley Research Center used OOSD for a Software Engineering Process manual, chosen partly for its strength in real-time software development. Ed has delivered presentations at the Ground Systems Architecture Workshop (LA, 2003), International Conference on Reliable Software Technologies (Belgium, 2001), TOOLS (2000, 1995), Ada Europe (England, 1997), TRI-Ada (1996, '95), UNICOM (England, 1993), OOPSLA (D.C., 1993), ObjectExpo (New York, 1993), ObjectExpo Europe (England, 1992), TRI-Ada (Florida, 1992), LOOK (Denmark, 1992), OOP (Germany, 1992), and SCOOP Europe (England, 1991). He is a graduate of the University of Michigan (M.S. Computer & Communication Sciences, 1981; B.S. (with Distinction) Chemistry and Biology, 1979).

## A Semi Formal Approach to Software Systems Development

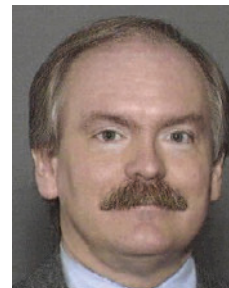
Friday June 20th, morning T7

### Abstract

Faced with the challenges of applying theoretical formal methods to the development of large scale systems, various techniques have been created that exploit semi-formal approaches. These techniques exploit many of the advantages of

the full formal methods but are less onerous to learn and to apply. Starting with Dr. Harlan Mills Cleanroom Software Engineering, the area of semi-formal methods has matured to being a viable choice for current developments.

The key technical aspects of such techniques include the application of enumeration-based requirements definition, the derivation of software design and code using state-machines and rigorous development stages, the verification of the software using informal correctness proofs, and the verification and validation of the product using statistical testing



William Bail  
The MITRE Corporation  
USA

## An Overview of Statistical-Based Testing

Friday June 20th, afternoon T8

### Abstract

Taking traditional approaches to the testing of large systems often results in less than satisfactory results. When transitioning from the test environment to the deployed environment, numerous latent defects are frequently discovered, even after what seems to be extensive testing. These defects become visible after the system is brought through a usage pattern that was unanticipated. In order to overcome these shortcomings of traditional requirements-based testing, the technique of statistical-based testing has been developed. In this approach, the expected usage patterns of the system are identified and modeled (using usage models which are based on state transition diagrams). For these patterns, predicted probabilities of occurrence are generated by assigning probabilities to each state transition. Based on the usage models, test cases and scenarios are randomly derived consistent with the probabilities of occurrence. The results are tracked and an overall reliability of performance is computed. Stopping criteria is then applied to determine the testing process has been sufficient for the system's goals. This approach also supports a significant increase in automation, thereby increasing the intensity of the testing and reducing the time needed to create and run the tests.

The tutorial will analyze this technique, and present the mechanisms used to create the usage models, identify the tests, and analyze the results.

## Biography

From 1983 to 1986, William Bail has taught part-time in Computer Science Department at the University of Maryland, College Park for undergraduate courses in discrete mathematics, computer architecture, and programming language theory. Since then, he teaches part-time a variety of courses in computer science in the University of Maryland University College. These courses have included: Ada, advanced Ada, intro to software engineering, verification and validation, software design,



# Technical Papers

## Transactions and Groups as Generic Building blocks for Software Fault Tolerance

Marta Patiño-Martinez, Ricardo Jimenez-Peris & Alexander Romanovsky, Spain - UK

## Adding Temporal Annotations and Associated Verification to Ravenscar Profile

Alan Burns & Tse-Min Lin, UK

## High Integrity Ravenscar

Peter Amey & Brian Dobbing, UK

## A Graphical Environment for GLADE

Ernestina Martel-Jordán, Francisco Guerra-Santana, Javier Miranda-González, & Luis Hernández-Acosta, Spain

## Experiences on Developing and Using a Tool Support for Formal Specification

Tommi Mikkonen, Finland

## Booch's Ada vs. Liskov's Java: Two Approaches to Teaching Software Design

Ehud Lamm, Israel

## A Case Study in Performance Evaluation of Real-Time Teleoperation Software Architecture using UML-MAST

Francisco Ortiz, Bárbara Álvarez, Juan A. Pastor & Pedro Sánchez, Spain

## A Behavioural Notion of Subtyping for Object-Oriented Programming in SPARK95

Tse-Min Lin & John A. McDermid, UK

## Running Ada on Real-Time Linux

Miguel Masmano, Jorge Real, Ismael Ripoll & Alfons Crespo, Spain

## A Test Environment for High Integrity Software Development

Alejandro Alonso, Juan Antonio de la Puente & Juan Zamorano, Spain

## The Standard UML-Ada Profile

Francis Thom & Emma Lines, UK

## Busy Wait Analysis

Johann Blieberger, Bernd Burgstaller & Bernhard Scholz, Austria

## Getting System Metrics Using POSIX Tracing Services

Agustín Espinosa Minguet, Vicente Lorente Garcés, Ana García-Fornes & Alfons, Crespo Lorente, Spain

## Quasar : A New Tool for Concurrent Ada Programs Analysis

S. Evangelista, C. Kaiser, J.F. Pradat-Peyre & P. Rousseau, France

## Testing Safety Critical Ada Code Using non Real-Time Testint

Y.V. Jeppu, K. Karunakar & P.S. Subramanyam, India

## Evidential Volume Approach for Certification

Silke Kuball & Gordon Hughes, UK

## A Quality Model for the Ada Standard Container Library

Xavier Franch & Jordi Marco, Spain

## Some Architectural Features of Ada Systems Affecting Defects

William Evanco & June Verner, USA

## Normalized Restricted Random Testing

Kwok Ping Chan, Tsong Yueh Chen & Dave Towey, Australia - Hong-Kong

## The Use of Ada, GNAT.Spitbol and XML in the Sol-Eu-Net Project

Mário Amado Alves, Alípio Jorge & Matthew Heaney, Portugal - USA

## A Comparison of the Asynchronous Transfer of Control Features in Ada and the Real-Time Specification for Java

Benjamin M. Brosgol & A.J. Wellings, UK

## Towards Static Verification of Real-Time Performance: The Case of the GOCE Platform Application Software

Niklas Holsti & Thomas Långbacka, UK

## A Round-Robin Scheduling Policy for Ada

A. Burns, M. Gonzalez Harbour & A. Wellings, Spain - UK

## A Proposal to Integrate the POSIX Execution-Time Clocks into Ada95

J. Miranda & M. González Harbour, Spain

## A Survey of Physical Unit Handling Techniques in Ada

C. Grein, Germany

## Exposing Memory Corruption and Plumbing Leaks: Advanced Mechanisms in Ada

Emmanuel Briot, Franco Gasperoni, Robert Dewar, Philippe Waroquiers & Dirk Craeynest, Belgium - France - USA

## HRT-UML: Taking HRT-HOOD onto UML

Silvia Mazzini, Massimo D'Alessandro, Marco Di Natale, Andrea Domenici, Giuseppe Lipari & Tullio Vardanega, Italy

## Charles: A Data Structure Library for Ada 95

Matthew Heaney, USA

## Eliminating Redundant Range Checks in GNAT Using Symbolic Evaluation

Bernd Burgstaller, Austria





# Workshop: QoS in CBSE 2003

A workshop will be held on Friday 20 June on the fifth day of the conference. A brief overview of objectives and topics follow but should you require further information, please see the related web pages.

## Aims

In dealing with the overall topic of reliable software, we are specifically interested in improving the way software developers manage the complexity of the current software which is generally distributed on the basis of existing reused pieces and with ever more stringent time constraints. The goal of this workshop is to look at issues related to the integration of non-functional properties, expression, evaluation and prediction, in the context of component-based software engineering. It is now widely recognized that what prevents Component-Based Software Engineering (CBSE) from being used more intensively is the fact that components are easy to produce but not easy to compose. This issue is currently addressed by considerable ongoing research. In the context of this particular workshop we would like to focus on the difficulty of predicting the overall behavior and quality of service provided (e.g performance, response-time) of a composite outside of its "internal" components. This implies that a software constructor should be able to access more than just the functional interface of a component. Its behavior and the quality of service provided and required should also be taken into account in some way. In addition, some tool support or underlying framework enabling the composition of these

added-value features should also be provided. The aim of this workshop is to bring together practitioners and academics who are currently working in these fields to highlight the ongoing solutions and problems encountered.

The workshop presenters and attendees will be asked to answer a number of open questions. These questions will be refined, selected and modified according to the early discussions of the day, and some working sessions will be organized in order to try and answer them.

## Examples of Open Questions

How can I constrain / improve my component-based design with QoS annotations?

What research path should we follow to make progress in predicting system behavior based on component behavior?

How do you decompose system behavior to get specific component requirements for non-functional system properties?

What do you have to build into components in order to make the overall system dynamically configurable?

For more information on this workshop, you can visit the associated pages at QoS CBSE'03 web site : <http://liuppa.univ-pau.fr/QoSCBSE2003>



# Exhibition

The exhibition opens in the mid-morning break on Tuesday and runs until after the Thursday afternoon break. It takes place in the conference hotel, where the coffee breaks are held.

Mid-morning and mid-afternoon breaks are 60 minutes long to give attendees ample opportunity to visit the exhibition.

Each exhibitor will have at least one half hour presentation slot during the vendor track ; the program for the vendor presentations is still being worked out.

At the time of writing, ten exhibitors: ACT Europe, Adalog, Aonix, CS, Green Hills, I-Logix, IPL, Praxis Critical Systems, Rational and TNI-Europe have come forward, others have expressed interest.





## Social Program

### Tuesday Evening: Civic Reception

On Tuesday, a cocktail will be held at the town hall by invitation of the Mayor of Toulouse. This follows a guided bus tour enabling you to discover the city and several of its well-known sites. The Capitole, the most renowned and symbolic of Toulouse, is where the reception will take place. Flowing through Toulouse is the Garonne river with its numerous bridges (the oldest being the "Pont Neuf") and the famous "Canal du Midi". A number of religious architectural masterpieces may also be discovered including churches, a cathedral, one of France's largest Romanesque basilicas (St Sernin) and monasteries.

### Wednesday Evening: Banquet

The evening banquet of the conference will take place in a typical "ferme lauragaise" (local farm) located near a lake. France, and Toulouse in particular, are renowned world-wide for their culinary expertise and you will appreciate local gastronomic dishes such as "foie gras", "cassoulet", duck, "magrets", cheeses and of course the fabulous French wines.

The bus will take the participants from the conference hotel and will drive them back at the end of the evening.

### Thursday Evening : To be announced



## Further Information

The conference web site gives up-to-date details of the program.

Also on the web site are details on the venue including travel information and hotel accommodation.

<http://www.ada-europe.org/conference2003.html>

In case of unavailable web-access or to receive further information please contact the Conference Organization:

[ae2003-info@irit.fr](mailto:ae2003-info@irit.fr)

Contact Voyages 31 travels agency regarding registration or hotel booking:

Michèle NAHUM – VOYAGES 31  
17 avenue des Etats-Unis  
31200 TOULOUSE  
Tel: (33) 05 62 72 97 34 or (33) 05 62 72 97 39  
Fax: (33) 05 62 72 97 30  
Email: [michele.nahum@voyages31.com](mailto:michele.nahum@voyages31.com)

Exhibiting and Sponsoring details are also available on the web site; a sliding scale of sponsorship provides a range of benefits. All levels include display of your logo on the conference web site and in the program. The lowest level of support is very affordable!

### Local sponsors enjoy

- > Exposure to an international audience;
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### Industry sponsors

- > Show visible commitment; saying that they are active and will remain active in this field;
- > Show commitment to Software Quality by publicly supporting a conference focusing on techniques for making good software;
- > Are seen helping with a major event in their community.

# > > Registration and Fees

The conference will take place at the Mercure Atria Hôtel downtown, in the Compans Caffarelli ward.

Hôtel Mercure Atria  
8 Esplanade Compans Caffarelli  
31 000 Toulouse France  
Tél + 33 (0)5 61 11 09 09 - Fax +33 (0)5 61 23 14 12 - H1585@accor-hotels.com

The registration form is available separately and also on the conference web pages.

## Conference Registration fee

Three days of conference (June 17th – June 19th) including one copy of the proceedings, coffee breaks, lunches, banquet (for full registration), visit and reception in town hall on Tuesday 17th.

	Member Ada-Europe or ACM SIGAda		Non member	
	Non academia	Academia	Non academia	Academia
Early registration (by May 24th)	<input type="checkbox"/> 530	<input type="checkbox"/> 470	<input type="checkbox"/> 590	<input type="checkbox"/> 530
Late registration (after May 24th)	<input type="checkbox"/> 590	<input type="checkbox"/> 590	<input type="checkbox"/> 650	<input type="checkbox"/> 650
One day registration	<input type="checkbox"/> 270	<input type="checkbox"/> 270	<input type="checkbox"/> 300	<input type="checkbox"/> 300

## Tutorial Registration Fee

Prices are per tutorial, including tutorials notes and coffee breaks.

Lunches are only included when registered for full day tutorial or workshop, or two half day tutorials on the same day.

	Half day	Full day or Two halves on the same day	Workshop
Early registration (by May 24th)	<input type="checkbox"/> 120	<input type="checkbox"/> 230	<input type="checkbox"/> 50
Late registration (after May 24th)	<input type="checkbox"/> 150	<input type="checkbox"/> 290	<input type="checkbox"/> 70

## Note

All the prices mentioned here are excluding VAT (19,6% will be added to your invoice).

No registration request will be confirmed until payment has been received. CANCELLATIONS must be in writing. A cancellation fee of 120 EUR will be applied to all cancellations. No refunds will be given for cancellations postmarked after June 1st. Substitutions will be accepted.

The hotel information can be found via the web page of the conference; a hotel booking form is available on line.

Discount can be obtained on plane or train travels.

Additional lunch tickets will be on sale throughout the conference.

For latest information see the web page at:

<http://www.ada-europe.org/conference2003.html>

# > > Program Committee

- |   |  |  |
|---|--|--|
| > Alejandro Alonso, ETSI Telecomunicacion, Spain                  | > Peter Dencker, Aonix GmbH, Germany   | > Pierre Morere, Aonix, France                                     |
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