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Keynote Speakers



Results of the National Academy of Sciences National Research Council's Review of the Past and Present Contexts for Using Ada Within the Department of Defense.

Barry Boehm, University of Southern California

Wednesday, December 4, 1996, 8:00 AM - 9:00 AM

Barry Boehm chaired the recent NRC Study Committee, which reviewed its original 1970's Ada program, compared it to the current situation, and proposed a new set of recommendations. The committee — which included a balance of professionals from the DoD, from industry, and from the broader Ada community — received numerous briefings and reports on experiences and trends in Ada and software engineering. It considered a wide range of options. This presentation will summarize the recommendations and the rationale behind them.

Barry Boehm is the TRW Professor of Software Engineering in the Department of Computer Science at the University of Southern California. Between 1989 and 1992, he served in DoD as Director of the DARPA Information Science and Technology Office, as Director of the DDR&E Software and Computer Technology Office, and as Director of two major DoD software initiatives. His two most recent books were *Software Engineering Economics* (1981) and *Software Risk Management* (1989).



The Technical and Business Dichotomy Surrounding Ada

Dennis Turner, U.S. Army

Thursday, December 5, 1996, 8:00 AM - 9:00 AM

Will Ada survive deep into the 21st Century? Where will it go in the software market? Ada has a proven record of benefits for organizations committed to “engineering discipline” in software development. But, despite all its technical virtues, Ada has yet to become a prominent language in the commercial market. Why? What are the likely consequences if this situation does not change? What can the Ada community do to help move it to a healthier “business” foundation?

Dennis Turner serves as Director of Software Engineering within the U.S. Army Communications-Electronics Command (CECOM) Research, Development, and Engineering Center. His directorate supports Army Project Managers and Program Executive Officers, who are responsible for weapon and defense systems used in strategic and tactical Battlefield Functional Areas. Turner's office oversees key activities in interoperability and standardization, software technology, and joint service missions. His group also assists in worldwide software support for satellite and ground communications, intelligence/electronic warfare, aircraft, command and control, simulation and training, and fire support systems. Turner has more than 25 years of industry and service experience in information processing and software engineering.



What if Your Life Depended on Software?

Watts Humphrey, SEI

Friday, December 6, 1996, 8:00 AM - 9:00 AM

Few people realize how much their well-being depends on software. It is critical to the performance or security of most advanced electronic products. Traditional methods to develop critical software are unsatisfactory. Better processes are essential. The Capability Maturity ModelSM, or CMM, is now widely used to help organizations improve their software capability. Experience with the CMM shows sharp improvements in product quality and development productivity. The Personal Software Process (PSP) introduces software engineers to disciplined personal methods. After PSP training, engineers produce more accurate plans and develop higher quality products.

Watts Humphrey is a Software Engineering Institute (SEI) fellow at Carnegie Mellon University. At SEI, he led the initial development of the CMM, and introduced the concepts of Software Process Assessment and Software Capability Evaluation. Prior to SEI, he spent 27 years with IBM in various technical executive positions including the management of all IBM commercial software development. Humphrey's books include *A Discipline for Software Engineering*, *Managing the Software Process*, and *Managing for Innovation - Leading Technical People*. In 1993, the American Institute of Aeronautics and Astronautics awarded him Aerospace Software Engineering Award. He holds five US patents.

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Invited Speakers



Exploiting Java Technology using Ada

Tucker Taft, Intermetrics, Inc.

Wednesday, December 4, 1996, 9:00 AM - 10:00 AM

Ada 95's chief designer Tucker Taft describes how Ada exploits the emerging Java technology to respond to today's new Internet-based computing paradigm. This talk will explain how Ada 95 has been adapted to the Java "platform," achieving full interoperability between Ada 95 and Java code, and opening up the exciting new Internet-based computing paradigm to the reliability and productivity of Ada-based development.

Tucker Taft is Chief Scientist in the Intermetrics Products and Technology Group and is currently Technical Director developing Intermetrics' Ada 95 technology, called AdaMagic™. He is also leading development for Intermetrics' Ada 95-to-Java, byte-code compiler, called AppletMagic™. From 1990 to 1995, Taft led the Ada 9X language design team.



Future Software Technology Trends

David Fisher, SEI

Wednesday, December 4, 1996, 2:00 PM - 3:00 PM

Ada pioneer David Fisher discusses future software trends revealed by the Structured Survey of Software Technology (SSST), a pilot project undertaken by the SEI for the Air Force acquisition community. The SSST is meant to reveal capabilities, limitations, maturity, and risks associated with particular software technologies. It provides criteria to enable technology trade-offs and selections. This session reports on the first phase of the effort which was completed on August 23.

David Fisher is a Senior Member of the Technical Staff at the Software Engineering Institute (SEI), where he is currently involved in projects relating to network security. He recently completed a term as technical team leader for the SSST.



Ada and Its Future Role in Distributed Systems

Richard Volz, Texas A&M

Thursday, December 5, 1996, 9:00 AM - 10:00 AM

During the '80s, pioneering developers recognized a number of issues with regards to distributed systems and Ada 83. The Ada community has now rectified many of these issues. Richard Volz will provide insight into these developments and discuss Ada's use in the next generation of distributed software architectures.

Richard Volz has been Department Head of the Computer Science Department at Texas A&M University since 1988, prior to which he was Director of the Robotics Research Laboratory and Professor of Electrical Engineering and Computer Science at the University of Michigan. For the past decade, he has also served on federal advisory boards including the Ada board, and has worked on technology for distributed Ada programs.



Using Ada in a CORBA World

Bill Beckwith, OIS

Thursday, December 5, 1996, 2:00 PM - 3:00 PM

CORBA represents one of the most important, pervasive, application-architecture technologies of the day. Bill Beckwith will explain why Ada 95 is the language of choice for developing fast, reliable, portable CORBA systems.

Bill Beckwith is Chief Product Engineer for Objective Interface Systems, Inc. Bill is one of the founders of the company and is a member of the board of directors. He is co-author of the OMG IDL to Ada 95 mapping. Bill is treasurer and past chairman of the Washington DC SIGAda chapter. He has worked for various software companies including Interbase, Systems Center, VM Software, Computer Associates, and STSC.



Integrating Legacy Components with Ada

Robert Dewar, ACT

Friday, December 6, 1996, 9:00 AM - 10:00 AM

Traditionally programming languages have been designed in isolation, as though they were the only language around. Ada 95 is the first language to make an aggressive attempt to break with this tradition. Robert Dewar discusses the extensive facilities for interface to other languages in Ada 95 that uniquely suit the language to modern concerns for reuse and component-based technology. He gives examples of the spectacular improvements in programming productivity that result.

Robert Dewar is a well-known expert in programming languages and compilers. He helped design Algol-68, Ada 83, and Ada 95. He led teams that developed Ada/Ed the first validated Ada 83 compiler, and more recently GNAT, the widely used GNU Ada 95 implementation.

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Presentations

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Distributed Ada 95 Track

WE1 Wednesday, 11:00 AM - 12:30 PM

Priority Ceiling Protocol in Ada. *Kwok-bun Yue, University of Houston - Clear Lake.*

This presentation discusses an implementation of the priority ceiling protocol in Ada 95. It reviews the implementation design and the Ada 95 features that enable the implementation.

Vendor presentation - TBD

Prototyping a Parallel Discrete Event Simulation System in Ada. *Helge Hagenauer, Universitat Salzburg.*

Software engineers have used Ada in recent research on designing simulation models for parallel execution. This presentation explores the "split-queue time warp" simulation algorithm. It also discusses the interaction between the definition of logical processes, the underlying simulation algorithm, and attainable efficiency.

WE4 Wednesday, 4:00 PM - 5:30 PM

Vendor presentation - TBD

A Comparison of Different Tasking Architectures Used in Mobile Satellite Communication Ground Station Software.

*Karl Gramp, Computer Sciences
Corporation.*

Three mobile, satellite-based telecommunication software designs offer a comparison of approaches to using threads (tasks) in real-time systems. The first uses single-threaded programs; the sec-

ond uses a thread for each hardware component, giving hundreds of threads; and the last uses individual threads for each action, leading to tens of thousands of threads. This presentation discusses Ada tasking facilities for creating a controlled and well-defined use of threads with extensive error checking both at compile and run time.

Design and Test Strategies for a Safety-Critical Real-Time Embedded Executive for a New Space Shuttle Display System.

*Charles Meyer, Primenet; Michael
Reznick, Intermetrics, Inc.*

This presentation describes the design decisions, prototyping techniques, and test methods employed to build a successfully delivered executive for a future space shuttle, cockpit-display system. It discusses debugging software on unique hardware, evaluating a COTS Ada run-time environment, and challenges posed by complex hardware and software interfaces.

TH1 Thursday, 11:00 AM - 12:30 PM

Vendor presentation - TBD

Providing Fault-Tolerant Services to Distributed Ada 95 Applications. *Yvon Kermarrec, Laurent Nana, Laurent Pautet, Telecom Bretagne.*

This paper presents various techniques and approaches for fault tolerance. It considers recovery blocks, a mechanism already implemented in an Ada 95 environment. It also extends the use of recovery blocks to deal with distributed applications.

Using Ada 95 for the Design of Distributed Real-Time Systems. *Robert Pettit, Software Productivity Consortium.*

This presentation describes Ada 95 Distributed Systems Annex for message communication between distributed partitions in an ADARTSSM design. It uses a case study of an air-traffic, display/collision, warning-monitor system.

TH4 Thursday, 4:00 PM - 5:30 PM

Interpartition Communication with Shared Active Packages. *Pascal Ledru, Aerospatiale, Inc.*

This presentation offers a technique for porting an application based on a tightly coupled distributed system to a loosely coupled system. It discusses the Shared Active packages for making use of protected objects with entries in a loosely coupled distributed system.

GNATDIST: a Configuration Language for Distributed Ada 95 Applications. *Yvon Kermarrec, Laurent Nana, Laurent Pautet, Telecom Bretagne.*

This presentation proposes a language for configuring distributed Ada 95 programs. The goal is realizing the advantages offered by distributed platforms, which include performance and high availability. Parts of this language have been implemented in an effort to make GNAT an environment for programming distributed systems.

A Comparison of Two Approaches to Distributed Application Development in Ada. *John Riley, CACI, Inc. Federal.*

Two approaches to distributed-application development with Ada show contrasting characteristics. One approach uses an object request broker based on the Common Object Request Broker Architecture (Corba). The other approach builds on the Ada Distributed Systems annex. The paper discusses the strengths and weaknesses of these approaches in the context of various problem domains.

Object-Oriented Development Track

WE3 Wednesday, 11:00 A M- 12:30 PM

The Situation in Object-Oriented Specification and Design. *George Cherry, Thought**Tools.*

This paper proposes a radical answer to: "Why is OO development so successful?" It uses this answer as the basis for an OO method that is more intuitive and more rigorous than other methods. Every object is an implicit mathematical function from its domain of situations onto its range of reactions. Objects go about their business by perceiving, classifying, and reacting to situations. Making explicit an object's domain of situations and its mapping onto reactions significantly enhances intuitions about objects, classes, and inheritance.

ADAM: A Language-Independent, Object-Oriented, Design Environment for Modeling Inheritance and Relationship Variants in Ada 95, C++, and Eiffel. *Steve Demurjian, University of Connecticut, Computer Science & Engineering Dept.*

The ADAM environment provides a language-independent, OO platform from which software engineers can automatically generate Ada 95, C++, and/or Eiffel code from a single design. ADAM offers design capabilities that support variants of inheritance and relationships, from different perspectives. These alternatives during design result in behavior that more precisely matches an application's requirements. This promotes a more disciplined approach to design and development.

Vendor presentation - TBD

WE6 Wednesday, 4:00 PM - 5:30 PM

Active Information Systems, From Object-Oriented design to Ada 95. *Moncef Bari, Centre de Recherche Informatique de Montreal.*

To build Active Information Systems, this session presents an OO design model and its mapping to Ada 95. It offers part of a methodology based, for each step of the software life cycle, on a model and a step-by-step process. Analysis is based on (1) an extended Entity/Relationship model for the static aspects and (2) an event-driven model for the dynamic aspects. Design is based on a particular OO model. Set up is based on Ada. The main benefit of this approach is to bring traceability into operation and to favor weak coupling between software components.

Vendor presentation - TBD

Object-Oriented Formal Specification to Support Ada 95 Reuse. *Huiming Yu, NC A&T State University, Department of Computer Science, College of Engineering.*

This presentation examines OO system development, the features of Ada 95 that facilitate reuse, and

the importance of formal specification for reuse. It will develop a Black Box Reuse (BBR). The new approach allows designers to describe inherited objects and aggregation frameworks in a unique way. Clients can use these objects and frameworks correctly without involving implementation details. Several examples show that BBR is straightforward and relates intuitively to Ada 95 syntax and semantics.

Ada 95 Design Track

WE5 Wednesday, 4:00 PM - 5:30 PM

The State-Machine Pattern. *Bo Sanden, Colorado Technical University*

In concurrent software design in Ada 95, a pattern is a group of tasks and protected units that is useful in different applications. State machines are common in real-time software. The State-Machine pattern captures the various constellations of tasks and protected units that software engineers can use to represent a state machine and its associated activities.

Control Structure Diagrams for Ada 95. *James Cross, Auburn University, Computer Science and Engineering.*

GRASP (Graphical Representations of Algorithms, Structures, and Processes) is a software engineering tool that generates Control Structure Diagrams (CSDs) from Ada 95 source code. CSDs make Ada 95 source code more comprehensible. They are useful both when designing and implementing new software, as well as when reading existing source code. GRASP also serves as a graphical interface to GNAT (GNU Ada Translator), an Ada 95 compiler used by many companies, universities and colleges. Programmers may create and edit source files,

generate CSDs for source code, print source code and CSDs, and compile and run Ada programs, all from within the GRASP environment.

Vendor presentation - TBD

Education/Training Track

TH3 Thursday, 11:00 AM - 12:30 PM

Ada Training and Education in the U.S. Army and U.S. Air Force. *David Cook, Air Force Institute for Technology.*

This presentation looks at the Army and the Air Force's commitment to Ada, as evidenced by their pervasive use of Ada in service academies, technical training schools, and graduate school. Ada has not only helped them meet operational military requirements, but also served them from a pedagogical standpoint. Academically, AFIT and the service academies resemble other collegiate environments. The U.S. Army's Computer Science School and Air Force's Keesler Technical Training Center are more akin to training institutions.

Vendor presentation -TBD

Active Learning and Process Assessment: Two Experiments in an Ada-Based Software Engineering Course. *Allen Parrish, University of Alabama, Department of Computer Science.*

In a junior-level software engineering course at the University of Alabama, students learn Ada for the first time. Tasks include very small programs to larger applications. Students widely perceive this course as difficult, and think of it as a "weed-out" course for computer science majors. To increase student retention, we are using cooperative learning techniques, and are assessing the student programming process. This paper reports on results from these experiments.

Ada 95 Toolkits Track

TH5 Thursday, 4:00 PM - 5:30 PM

TASH: A Free Platform, Independent Graphical User Interface Development Toolkit for Ada. *Terry Westley, Calspan SRL Corporation.*

TASH is a platform-independent Application Programming Interface (API) for developing Graphical User Interfaces (GUI). This API includes a complete "thin" binding to Tcl and an experimental "thick" binding to Tk from Ada 95. Several features of Ada 95 such as access to subprograms, tagged types, and interface to C prove useful in this binding.

An Application-Independent Concurrency Skeleton in Ada 95. *Matthew Dwyer, Kansas State University, Department of Computing and Information.*

Ada 95 allows software engineers to construct coordination abstractions, also known as concurrency skeletons. Just as a data abstraction hides the details of a type's implementation, a coordination abstraction hides the details of the coordination activities that are inherent in a concurrent computation. These details include the communication, synchronization, and topology of the computation. An application is built from such abstractions by instantiation using data and computational components specific to each application. The presentation describes a concurrency skeleton construction and its application to a wide variety of problems.

Towards an Ada Basis for KBSE: Refine-Ada 95 Conversion. *Paul Bailes, Centre for Software Maintenance, Department of Computer Science, The University of Queensland.*

Accessible enabling technology facilitates Knowledge-Based Software Engineering (KBSE). Ada 95 is now universally accessible, as will be KBSE if Ada 95 is seen to support it. An automatic conversion from the Refine programming language component of the Software Refinery KBSE environment exposes the strengths and weaknesses of Ada 95's support for KBSE. At the very least, Ada 95 enables the more widespread distribution of KBSE applications developed with Software Refinery.

Reuse Track

TH6 Thursday, 4:00 PM - 5:30 PM

Vendor presentation - TBD

Learning to Use Ada 95 Components Using HTML Linking. *Bohdan Nebesh, George Washington University.*

One of the major obstacles to widespread software reuse is learning how to take advantage of components from a software library. To help, we built a tool that automatically embeds Hypertext Markup Language (HTML) links in Ada 95 specification files. The tool links derived types their parent types, child packages to their parents, and all subprogram parameter and return types to their declarations. Our preliminary results indicate that our techniques are effective in aiding programmers in learning to use library components.

Reuse/Ada. *John Beidler, Computing Science Department, University of Scranton.*

Despite promises at various levels, reuse will never achieve its true potential until resources become available that assist software developers in locating, interfacing, and applying reusable resources in a productive and convenient manner. This presentation describes two

such resources. One tool is a client-configurable, source-code development environment. The second is a web-based approach currently under construction.

FR3 Friday, 11:00 AM - 12:30 PM

Migrating Well-Engineered Ada 83 Applications into Newer Architecture and Reuse based on Ada 95. *Scott Moody, Boeing Defense & Space - Systematic Reuse Group.*

The time is right for the vast number of existing Ada systems to migrate to Ada 95. A necessary set of infrastructure tools and bindings is in-place, and experience has highlighted the challenges. The step is not a translation because straight code conversion does not exploit the advanced features of the new language and is not always possible because of the reliance on external products that lack Ada 95 bindings.

DAGAR: A Process for Domain Architecture Definition and Asset Implementation. *Carol Klingler, Lockheed Martin Tactical Defense Systems.*

Few domain modeling methods couple domain architecture engineering. This presentation describes the DAGAR (Domain Architecture-Based Generation for Ada Reuse) process, a method that supports the Organization Domain Modeling (ODM) method. DAGAR is a repeatable, documented process with accompanying tools based on the GenVoca domain architecture process developed by Dr. Don Batory and colleagues at the University of Texas. DAGAR develops domain architecture, assets implementation within the architecture, and domain application. A real-world, military application (the Army STARS Project) has used DAGAR.

Vendor presentation - TBD

Using Ada 95 Track

FR2 Friday, 11:00 AM - 12:30 PM

Ada and ASIS: Justification for Differences in Terminology and Mechanisms. *Sergey Rybin, Scientific Research Computer Center, Moscow State University.*

The Ada Semantic Interface Specification (ASIS) is the basis for implementing portable tools aimed at analyzing static properties of Ada source code. Ada language definition specifies the legality of compilation units and the behavior of a program at run-time. While Ada and ASIS have aspects in common, the different goals also justify some specific terminology and mechanisms in ASIS. This presentation also deals with some issues still to be resolved to prepare ASIS for standardization.

Vendor presentation - TBD

COREMO: A Corba Real-Time Extension Model and its Ada 95 Implementation. *Zied Choukair, Department Informatique, Telecom Bretagne.*

This presentation addresses distributed OO computing with real-time constraints in an open environment. The Corba (Common Object Request Broker Architecture) released by the OMG (Object Management Group) is the selected open object bus. It provides distribution transparency and interoperability between heterogeneous systems. We implemented the Corba core in Ada 95 and developed a real-time extension to the model called COREMO. This extensions will provide Corba applications with quality of service as well as the opportunity for real-time application developers to use the Corba paradigms. Preliminary experimentation showed that when configuring a COREMO server adequately with appropriate real-time policies, we improve its QoS.



"Waste neither time nor money, but make the best use of both (by coming to Tri-Ada'96)."

Benjamin Franklin

Tri-Ada '96 Conference Program

Panels

Check the Tri-Ada '96 Web site regularly for updates and expanded information!
<http://www.acm.org/sigada/tri-ada/>

WE2 Wednesday, 11:00 A M- 12:30 AM

Future Directions for Ada Bindings and Related Standards.

Moderator: David Emery, Hughes/Canada.

Panelists: TBD.

Over the last few years there has been a shift in widely used standards for system interfaces such as Unix, database interfaces and similar services. This panel will serve as a forum for this change in activities, and will focus on how the community can continue to successfully develop Ada-associated standards in the new environment of consortia standards. The panelists will present perspectives on recent standardization efforts. They will work with the audience to propose a new approach for Ada bindings and related secondary standards.

TH2 Thursday, 11:00 AM - 12:30 AM

Software Reuse and AdaSAGE.

Moderator: Charles Engle, Ada Joint Program Office.

Panelists: Robert Leif, Ada Med; Fred W. Thompson, SAIC; John Taylor, US Army Software Development Center; George Thurmond, National Defense University; Paul Whittington, INEL.

This panel will address AdaSAGE's use as a software tool for developing complex applications and for highlighting the advantages of the reuse component of this environment. The panel will discuss the factors that define reuse, as experienced by software developers. Participants will evaluate the success of AdaSAGE on the critical measures of reuse quality — understandability, ease of use and effectiveness. Coordinated efforts among users, developers, and administrators are a necessity.

FR1 Friday, 11:00 AM -12:30 PM

Ada and Java: Towards disciplined programming for the next software generation.

Moderator: Anthony Gargaro, CSC.

Panelists: Tucker Taft, Intermetrics, Inc; Ken Arnold JavaSoft East; Robert Firth, SEI.

This panel session will examine the relative merits of Ada and Java in improving practices for disciplined software development. Panelists will present their perspective on whether these languages will achieve the expected benefits claimed by their proponents. Since both Ada and Java provide similar semantic models, one question becomes whether their combined influence can overcome less disciplined software development practices promoted by some other programming languages. The panel is fortunate to have leading authorities on both languages.

FR5 Friday, 2:00 PM - 5:30 PM

The Future Role of Programming Languages.

Moderator: Hal Hart, TRW.

Panelists: Robert Firth, SEI, others TBD

Radical changes are certain in the future of programming languages. A simple, continuously evolving level of abstraction of languages has served the field well for 50 years. Technologies for formally representing and translating languages, and the methods for teaching their effective application, have continually evolved with trends. It may be that the heyday of 3rd-generation languages (and popular 4GLs for some domains) is now giving way to new paradigms of serious software development, including reuse-driven

processes, visual programming, reverse engineering and re-engineering, specification languages, and automatic program generators, etc. Or, maybe the biggest change is that most computer applications in the future will be developed by individuals with very different backgrounds than the vast majority of us, for very different purposes, and by appropriately different methods.

FR6 Friday, 2:00 PM - 5:30 PM

The Ada Community — Reactions to Change.

Moderator: Mark Gerhardt, Martin Marietta.

Panelists: Chuck Engle, AJPO; Tucker Taft, NRC Committee; Maretta Holden, NRC Committee; Brad Balfour, ACM SIGAda; Oliver Cole, ARA.

A panel of experts will share their insight and opinions on the dynamic changes impacting the Ada community.

Discussions will include:

- The emergence of Ada 95, Windows '95, Java and the explosion of the internet and the resulting changes in development standards and processes;
- The organizational location and planned lifetime of the AJPO;
- The Ada Resource Association's issues inherent in being an effective industry association;
- The National Research Council's re-examination of the Ada situation and current policy in light of current software and business perceptions.
- ACM-SigAda's expanded role in support of the Ada community.

Program at a Glance

TUTORIALS

Tuesday 12/3/96

Wednesday 12/4/96

Tuesday 12/3/96		Start Time		Stop Time		Keynote Speaker Barry Boehm, Summary of NRC Report on Ada					
HALF DAY - AM	<p>TU1 Poulin, Jeffrey S.: Software Reuse Metrics, Reusability Metrics, and Economic Models</p> <p>TU2 Overndorf, Trish & Sledge, Carol (SEI): Introduction to Open Systems</p> <p>TU3 Pettit, Rob: CoRE for Requirements, ADARTS for Design</p>	FULL DAY	<p>TU8 Cohen, Norman: Ada 95 for Ada-83 Programmers</p> <p>TU9 Obenza, Ray: Guaranteeing Real-Time Performance Using Rate Monotonic Analysis</p> <p>TU10 Cohen, Sholom & Donohoe, Pat: Domain Engineering</p> <p>TU11 Steward, Howard D. and Whittington, Paul: Visual Ada 95 Development for WIN32</p> <p>TU12 Barbey, Stephane & Strohmeier, Alfred: Object-Oriented Programming with Ada 95</p> <p>TU13 Lawlis, Pat & Adams, Karyl: Ada Design Issues</p> <p>TU14 Kempe, Magnus: Elements of Software Architecture with Ada 95</p> <p>TU15 Fayad, Mohamed: Object-Oriented Experiences and Future Trends</p>	8.00	9.00	Technical Presentation by Tucker Taft Exploiting Java Technology Using Ada					
				9.00	10.00	Exposition/Break					
HALF DAY - PM	<p>TU4 Naiditch, David: How Ada 95 promotes safe programming practices.</p> <p>TU5 Joiner, Harry: A Risk-Based Approach to Software Metrics.</p> <p>TU6 Gibson, David S., and Weide, Bruce: Software Component Engineering Using Ada 95: Applying Explicit Design Principles in a Disciplined Way</p> <p>TU7 Wartik, Steve: Product Line Management and Engineering</p>			10.00	11.00	Distributed Ada 95 Track WE1	<p>Dr. Kwok-bun Yue, Priority Ceiling Protocol in Ada</p> <p>Vendor Presentation</p> <p>Professor Helge Hagenauer, Prototyping a Parallel Discrete Event Simulation System in Ada</p>	Panel WE2	<p>Future Directions for Ada Bindings and Related Standards Moderator: David Emery Panelists: TBD</p>	Object-Oriented Development Track WE3	<p>Dr. George Cherry, The Situation in Object-Oriented Specification and Design</p> <p>Dr. Steve Demurjian, ADAM: A Language-Independent, Object-Oriented, Design Environment for Modeling Inheritance and Relationship Variants in Ada 95, C++, and Eiffel</p> <p>Vendor Presentation</p>
				11.00	12.30						
				12.30	14.00	Lunch					
				14.00	15.00	Technical Presentation by David Fisher Future Software Technology trends					
				15.00	16.00	Exposition/Break					
				16.00	17.30	Distributed Ada 95 Track WE4	<p>Vendor Presentation</p> <p>Mr. Karl Gramp, A Comparison of Different Tasking Architectures Used in Mobile Satellite Communication Ground Station Software</p> <p>Mr. Charles Meyer & Mr. Michael Reznick, Design and Test Strategies for a Safety-Critical Real-Time Embedded Executive for a New Space Shuttle Display System</p>	Ada 95 Design Track WE5	<p>Dr. Bo Sanden, The State-Machine Pattern</p> <p>Dr. James H. Cross II, Control Structure Diagrams for Ada 95</p> <p>Vendor Presentation</p>	Object-Oriented Development Track WE6	<p>Professor Moncef Bari, Active Information Systems, From Object-Oriented design to Ada 95</p> <p>Vendor Presentation</p> <p>Professor Huiming Yu, Object-Oriented Formal Specification to Support Ada 95 Reuse</p>

CONFERENCE

TUTORIALS

Thursday 12/5/96

Friday 12/6/96

Saturday 12/7/96

<p>Keynote Speaker Dennis Turner, The Technical and Business Dichotomy Surrounding Ada</p>			<p>Keynote Speaker Watts Humphrey, What If Your Life Depended on Software?</p>			<p>FULL DAY</p> <p>SA1 ASEET Team, Object-Oriented Features and Programming in Ada 95</p> <p>SA2 Munck, Bob, Ada and the Web</p> <p>SA3 Winters, George R. II, An Introduction to Software Capability Maturity Model Based Software Process Improvement</p> <p>SA4 Johns, Janet Faye, Artificial Intelligence with Ada</p> <p>SA5 Colbert, Ed, Object-Oriented Analysis and Design for Ada 95 with Colbert's Object-Oriented Development Method</p> <p>SA6 Kermarrec, Yvon & Pautet, Laurent, Programming Distributed Applications with Ada 95 and an inside look at the GNAT implementation</p> <p>SA7 Sanden, Bo, Design of Concurrent Software in Ada 95</p>
<p>Technical Presentation by Richard Volz Ada and its future role in distributed systems</p>			<p>Technical Presentation by Robert Dewar Integrating Legacy Components with Ada</p>			
<p>Exposition/Break</p>			<p>Exposition/Break</p>			
<p>Distributed Ada 95 Track TH1</p> <p>Vendor Presentation</p> <p>Dr. Yvon Kermarrec, Mr. Laurent Nana, and Mr. Laurent Pautet, Providing Fault Tolerant Services to Distributed Ada 95 Applications</p> <p>Mr. Robert G. Pettit IV, Using Ada 95 for the Design of Distributed Real-Time Systems</p>	<p>Panel TH2</p> <p>Software Reuse with AdaSAGE Moderator: Charles Engle Panelists: Dr. Robert C. Leif, Cmdr. Fred W. Thompson, Mr. John Taylor, Col. George Thurmond, Mr. Paul Whittington</p>	<p>Education/Training Track TH3</p> <p>Maj. David A Cook, Ada Training and Education in the U.S. Army and U.S. Air Force</p> <p>Vendor Presentation</p> <p>Dr. Allen Parrish, Active Learning and Process Assessment: Two Experiments in an Ada-Based Software Engineering Course</p>	<p>Panel FR1</p> <p>Ada/Java: Towards disciplined programming for the next software generation. Moderator: Anthony Gargaro Panelists: S. Tucker Taft, Ken Arnold, Robert Firth</p>	<p>Using Ada 95 Track FR2</p> <p>Dr. Sergey Rybin, Ada and ASIS: Justification for Differences in Terminology and Mechanisms</p> <p>Vendor Presentation</p> <p>Dr. Zied Choukair, CORE-MO: A CORBA Real Time Extension Model and its Ada 95 Implementation</p>	<p>Reuse Track FR3</p> <p>Mr. Scott Arthur Moody, Migrating Well-Engineered Ada 83 Applications into Newer Architecture and Reuse based on Ada 95</p> <p>Ms. Carol Klingler, DAGAR: A Process for Domain Architecture Definition and Asset Implementation</p> <p>Vendor Presentation</p>	
<p>Lunch</p>			<p>Lunch</p>			
<p>Technical Presentation by Bill Beckwith Using Ada in a CORBA world</p>				<p>FR5 Panel Future of Programming Languages Moderator: Hal Hart Panelists: TBD</p>	<p>FR6 Panel The Ada Community- Reactions to Change Moderator: Mark Gerhardt</p>	
<p>Exposition/Break</p>			<p>Exposition/Break</p>			
<p>Distributed Ada 95 Track TH4</p> <p>Mr. Pascal Ledru, Interpartition Communication with Shared Active Packages</p> <p>Dr. Yvon Kermarrec, Mr. Laurent Nana, and Mr. Laurent Pautet, GNATDIST: a Configuration Language for Distributed Ada 95 Applications</p> <p>Mr. John Riley, A Comparison of two Approaches to Distributed Application Development in Ada</p>	<p>Ada 95 Toolkits Track TH5</p> <p>Mr. Terry J. Westley, TASH, A Free Platform: Independent Graphical User Interface Development Toolkit for Ada</p> <p>Dr. Matthew Dwyer, An Application-Independent Concurrency Skeleton in Ada 95</p> <p>Professor Paul A. Bailes, Towards an Ada Basis for KBSE: Refine-Ada 95 Conversion</p>	<p>Reuse Track TH6</p> <p>Vendor Presentation</p> <p>Dr. Bohdan Nebesh, Learning to Use Ada 95 Components Using HTML Linking</p> <p>Dr. John Beidler, Reuse/Ada</p>		<p>FR5</p> <p>Panel continued</p>	<p>FR6</p> <p>Panel continued</p> <p>Members: Chuck Engle - AIPO, Tucker Taft - NRC committee, Mareta Holden - NRC Committee, Brad Balfour - ACM SIGAda, Oliver Cole - ARA</p>	

Tutorials

Max-out your education dollar: Sign up for a Tri-Ada '96 tutorial! Let Tri-Ada's accomplished instructors get you up to speed quickly with the topic of your choice.

- Half-day, AM tutorials are from 8:30 AM to 12:30 PM.
- Half-day, PM tutorials are from 2:00 AM to 5:30 PM.
- Full day tutorials are from 8:30 AM to 5:30 PM.
- Tutorials with an AM time will include coffee from 8:00 AM to 8:30 AM, and a break from 10:15 AM to 10:45 AM.
- Tutorials with a PM time will include a break from 3:15 PM to 3:45 PM.

Tuesday AM

TU1 Software Reuse Metrics, Reusability Metrics, and Economic Models. *Jeffrey Poulin, Lockheed Martin Federal Systems.*

This tutorial will explain how to apply reuse metrics, reuse economics, and reuse return-on-investment (ROI) models in diverse organizations and programming languages. How do we measure the level of reuse on a project? (Handle generated code, COTS, internal vs. external reuse, etc.) How do we quantify the financial benefits of reuse? (Justify reuse investments based on cost-benefits, etc.) How do we identify the most reusable components? (Locate reusable components in existing code and build for reuse.)

Prerequisites: None.

Level: Novice ●

TU2 Introduction to Open Systems. *Trish Overndorf, & Carol Sledge, SEI.*

This half-day presentation provides participants with a high-level understanding and appreciation of the transition to an open-systems approach for systems acquisition. It provides practical definitions, the basics of an open systems approach, an understanding of the issues involved in open systems, and knowledge of what to look for based on the experiences of real DoD programs. After attending this session, participants will be better prepared to incorporate open systems into their approach to engineering and acquiring systems. They will know what to expect of their team and have more knowledge about opportunities to collaborate with other organizations.

Prerequisites: Familiarity with systems acquisition.
Level: Novice ●

TU3 CoRE for Requirements, ADARTSSM for Design *Rob Pettit, Software Productivity Consortium.*

The CoRE and ADARTS tutorial provides an overview of the Consortium Requirements Engineering (CoRE) and the Ada-based Design Approach for Real-Time Systems (ADARTS) methods. CoRE is a method for analyzing, specifying, and managing real-time software requirements. ADARTS 3.0 is one of the Consortium's most widely-used technologies for developing real-time systems and is the standard design method for several major programs. CoRE and

KEY

Novice ●
Intermediate ◆
Advanced ◆◆

ADARTS 3.0 provide the analyst and designer with defined, repeatable methods consisting of an iterative series of activities. Both methods lead the designer to produce well-defined work products and system/software architectural views that aid in understanding and setting up the system.

Prerequisites: Basic understanding of software engineering principles and development processes. Experience in designing real-time systems is helpful but is not required.
Level: Novice ●

Tuesday PM

TU4 How Ada 95 Promotes Safe Programming Practices. *David Naiditch, Hughes Aircraft Company*

Using code examples, this tutorial illustrates how Ada 95 features can minimize unsafe Ada 83 programming practices. In particular, Ada 95 provides elegant and safe solutions to problems that have traditionally required Ada programmers to resort to unchecked programming.

Prerequisites: Familiarity with Ada 83.

Level: Intermediate ◆

TU5 A Risk-Based Approach to Software Metrics. *Harry Joiner, System Resources Corporation.*

Controlling software projects means managing the risk factors to the project's cost, schedule, and quality objectives. The team that identifies these factors up front and develops customizable metrics

can get information early enough to take corrective steps. This permits frank communications among the project personnel. The session will use specific examples to show how proper trend analysis ensures that the team can cohesively assess and manage risks.

Prerequisites: No special training in metrics required.

Level: Intermediate ◆

TU6 Software Component Engineering Using Ada 95: Applying Explicit Design Principles in a Disciplined Way.

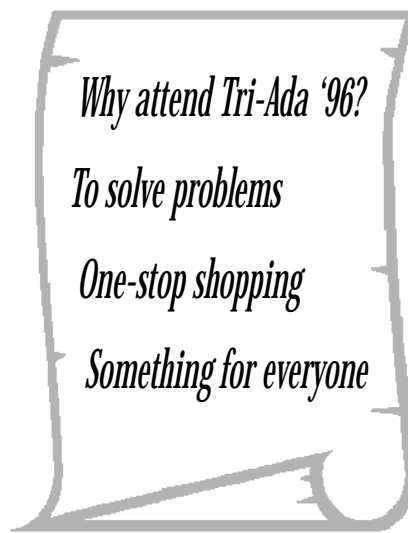
David Gibson, & Bruce Weide, Ohio State University.

This tutorial presents the RESOLVE/Ada 95 discipline for constructing reusable software components in Ada 95. To improve software quality and programmer productivity, the discipline demands four properties of all software components: composability (with other components designed under the discipline), correctness (relative to a formal behavioral specification), reusability, and understandability. RESOLVE/Ada 95 is a comprehensive set of principles governing component design, execution, testing, and usage.

Prerequisites: Workshop participants should be experienced Ada programmers — preferably practicing software engineers with a familiarity with the new language features of Ada 95.

Level: Intermediate - Advanced

◆ - ◆◆



TU7 Product Line Management and Engineering. *Steven Wartik, Software Productivity Consortium.*

Software managers and technologists can learn to apply the concepts of product lines to software. The tutorial's emphasis is conceptual rather than practical, but includes pointers to real projects that have used product lines. It will cover the benefits of product lines and discuss the Synthesis methodology for identifying, analyzing, and setting up product lines. The session will also describe a practical approach for adopting Synthesis.

Prerequisites: None.

Level: Novice - Intermediate

● - ◆

Tuesday Full Day

TU8 Ada 95 for Ada 83 Programmers. *Norman Cohen, IBM Thomas J. Watson Research Center.*

This tutorial is designed to introduce Ada 95. Particular attention will be placed on the new features of the language, such as object orientation, inheritance, protected records, and hierarchical libraries.

Prerequisites: Some knowledge of Ada 83 is beneficial.

Level: Novice ●

TU9 Guaranteeing Real-Time Performance Using Rate Monotonic Analysis. *Ray Obenza, SEI.*

Rate monotonic analysis (RMA) is a simple, practical, mathematically sound way to meet response-time requirements. Today, engineers are using RMA to analyze real-time system designs, to identify and eliminate unbounded priority inversion, and to meet hard deadlines at all times. They can also use RMA to show when designs meet average-case performance requirements. RMA is a collection of quantitative methods and algorithms that allow engineers to understand, analyze, and predict the timing behavior of their designs. This session introduces RMA and provides information for evaluating its usefulness within an organization. The tutorial explains RMA for practical use on real-world systems and employs a case study to tie the concepts together.

Prerequisites: None. Participants may find bringing a calculator helpful.

Level: Novice ●

TU10 Domain Engineering. *Sholom Cohen, & Pat Donohoe, SEI*

Domain engineering is a process for building reusable software assets. It is based on understanding the commonality and variability among related software systems and on building domain models, architectures, and components accordingly. These become building blocks for applications. This tutorial addresses the technical issues and engineering tradeoffs involved in creating reusable software assets for product lines. Its focus is a model- and architecture-based approach to systematic software reuse that exploits commonality and manages variability. Attendees will learn how the assets become the technology base

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<http://www.acm.org/sigada/tri-ada/>

of an application engineering process. Examples include current product-line approaches from various organizations.

Prerequisites: None.

Level: Novice ●

TU11 Visual Ada 95

Development for WIN32 *Howard Steward, & Paul Whittington, Idaho National Engineering Laboratory.*

This tutorial will provide beginning to advanced instruction in Ada for WIN32 platforms using the new Visual AdaSAGE environment. It will cover object-oriented development using visual components, ActiveX controls, custom controls, JAVA and JVM, integration with SAGE and other popular data base engines, and graphical user interface development for Windows 95 and Windows NT.

Prerequisites: A familiarity with the Ada programming languages is helpful. Novice to intermediate in the morning, advanced in the afternoon.

Level: Novice - Intermediate (am) - Advanced (pm) ● - ◆ - ◆◆

TU12 Object-Oriented Programming with Ada 95.

Stephane Barbey, & Alfred Strohmeier, Swiss Federal Institute of Technology in Lausanne.

This tutorial provides a comprehensive view of object-oriented programming with Ada 95. It covers the new OO features of the language and their integration into good programming practice. Example applications demonstrate proper use of the new features.

Prerequisites: Familiarity with Ada is helpful. This tutorial will also be of interest to those familiar with other OO programming languages.

Level: Novice - Intermediate

● - ◆

TU13 Ada Design Issues.

Patricia Lawlis, & Karyl Adams, C.J. Kemp Systems, Inc.

This course emphasizes the aspects of software design that practitioners must address in non-traditional manners to use Ada effectively. What differences in this language guide the design process? A comparison of traditional and newer design introduces the essential aspects of Ada-based design. The tutorial emphasizes design architecture and the packaging, algorithmic, and data abstractions within Ada.

Prerequisites: Training or experience in basic software design.

Level: Intermediate ◆

TU14 Elements of Software Architecture with Ada 95.

Magnus Kempe, KSCE, Switzerland.

Software architecture deals with design problems beyond algorithms and data structures. It makes possible large-scale software systems with stable foundations. This tutorial provides a practical introduction to software architecture with Ada 95 and shows how to use, evaluate, and write architectural elements. The topics covered include: the nature and value of software architecture; architectural styles and structures (e.g., subsystems, layers); design for adaptability (e.g., genericity, object-orientation, table-driven mechanisms); proven, fundamental elements of software architecture in Ada 95 (e.g., containers, filters, model-view-controller, blackboard); and finally, finding and creating useful architectural elements. Participants can immediately apply this to Ada 95 systems.

Prerequisites: The material requires knowledge of generics and object-oriented mechanisms but no previous acquaintance with

software architecture.

Level: Intermediate ◆

TU15 Object-Oriented Experiences and Future Trends.

Mohamed Fayad, University of Nevada.

This tutorial reviews good and bad characteristics of several object-oriented techniques (OMT, Use Case Approach, Unified Approach, O-ET). It identifies aspects of these techniques to avoid. Participants will consider five case studies and the lessons learned, as well as some solutions and strategies to existing problems with OO.

Prerequisites: A general familiarity with OO concepts and software engineering principles

Level: Intermediate ◆

Saturday Full Day

SA1 Object-Oriented Features and Programming in Ada 95.

Eugene Bingue, & David Cook, Leslie Dupaix, The ASEET Team.

This tutorial is an introduction to Ada and Ada 95, with emphasis on features new in Ada 95.

Prerequisites: No knowledge of Ada is required. Familiarity with some programming language is desirable, but not required.

Level: Novice ●

SA2 Ada and the Web *Bob Munck.*

This tutorial explores the relationship of Ada and resources on the Web. It's been said that a year on the WWW is like 10 years of normal technology. Thus, this tutorial will present the latest information and technology.

Prerequisites: None.

Level: Novice ●

SA3 An Introduction to Software Capability Maturity ModelSM-Based Software Process Improvement. *George Winters, SEI.*

This tutorial introduces software process improvement and the capability maturity model, IDEAL approach, and tools that support IDEAL. It is intended for those unfamiliar with the topics, and is appropriate for practitioners, managers, and executives who seek an overview of the area and of software process improvement tools and their application and integration.

Prerequisites: None.

Level: Novice ●

SA4 Artificial Intelligence with Ada *Janet Faye Johns, The MITRE Corporation.*

Artificial Intelligence (AI) harnesses the power of knowledge. AI techniques create systems to perform useful intelligent tasks. With them, innumerable systems used by real people accomplish everyday tasks. This tutorial introduces the building blocks of an AI system and focuses on rule-based systems. It develops such a system, in order to illustrate how Ada 95 can build AI.

Prerequisites: General understanding of Ada and a general interest in Artificial Intelligence.

Level: Novice ●

SA5 Object-Oriented Analysis and Design for Ada 95 with Colbert's Object-Oriented Software Development Method. *Edward Colbert, Absolute Software Co., Inc.*

This tutorial will explore Colbert's Object-Oriented Software Development method (OOSD) and its support for Ada, including Ada 95. OOSD focuses on the objects

of a problem throughout development and is particularly compatible with Ada. OOSD addresses real-time issues, quickly communicates the information developed during analysis and design, and allows for exceptionally high reuse of both design representation and code. It is in use in many types of systems.

Prerequisites: General familiarity with OO concepts, and languages such as Ada 83. Familiarity with Ada 95, and experience developing large real-time or distributed systems, are useful, but not required.

Level: Intermediate ◆

SA6 Programming Distributed Applications with Ada 95 and an Inside Look at the GNAT Implementation. *Yvon Kermarrec, & Laurent Pautet, Telecom Bretagne.*

This tutorial will explain how to use Ada 95 for distributed applications. It will also discuss how various GNAT implementations achieve distributed components.

Prerequisites: Knowledge of Ada and Ada tasking.

Level: Advanced ◆◆

SA7 Design of Concurrent Software in Ada 95 *Bo Sanden, Colorado Technical University.*

Ada 95 is one of the few industry-strength languages that combine OO and concurrency. This tutorial shows participants how to use the concurrency features to design solutions to practical problems. The tutorial goes beyond traditional, textbook examples of concurrency. It introduces and uses the entity-life modeling (ELM) design approach. The session provides design heuristics and design patterns for different application types.

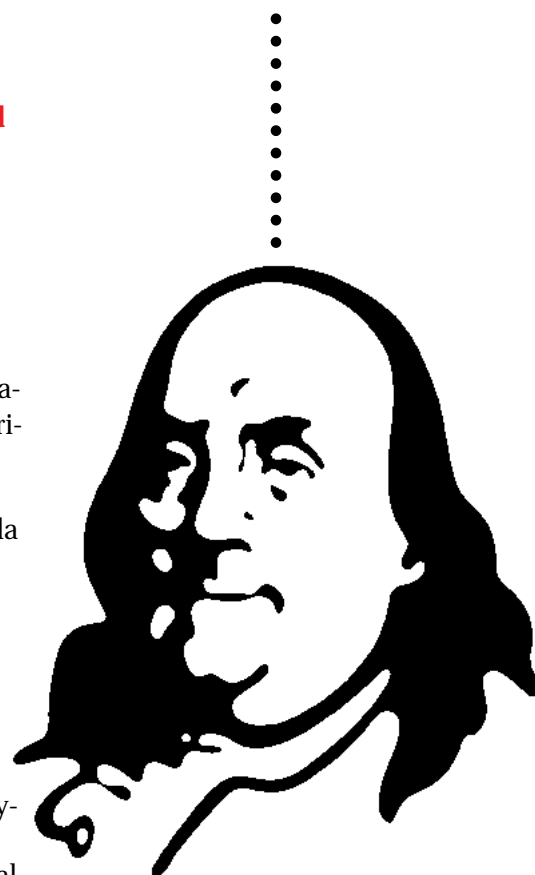
Prerequisites: Knowledge of the Ada 95 tasking syntax.

Level: Advanced ◆◆

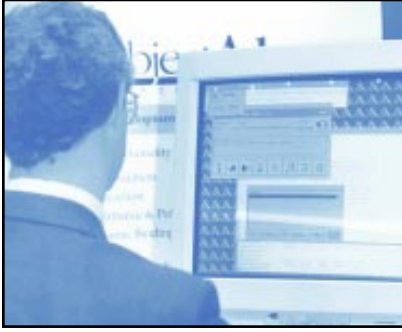
• **Discover the ease with which Ada 83 is upwardly compatible.**

• **Find out about the high reusability of Ada 95 code.**

• **See the improvements Ada 95 brings.**



The Tri-Ada Exhibition



Tri-Ada '96 offers you an assemblage of vendors like no other meeting. Simply put, December 4, 5, & 6 means the largest gathering and exposition of companies with Ada-related products and services anywhere. You'll see the latest advancements, take in the latest demo's, and hear the newest announcements. It's your chance to talk with the creators of the software tools you use daily and get your software advise face to face with the developers.

These vendors constantly canvas the field for its needs, issues, and opportunities. Find

out from them about the products and services that can help you.

Last year's meeting had some 50 exhibitors, including: ACT, Intermetrics, OC Systems, RR Software, and many other leading firms. This year's exhibitors will also include GreenHills Software, Objective Interface Systems, Rational Software, Interactive Dev. Environments (IDE), DDC-I, Praxis Critical Systems, McCabe & Assoc., Absolute Software, and many others.



For information on reserving exhibit space, contact Tri-Ada '96's conference manager R.E. Abraham & Associates at 919-419-8242, E-mail: 74117.35@compuserve.com

Birds of a Feather/Working Groups

Conference attendees interested in forming a **Birds of a Feather** get together with colleagues or who would like to organize a **Working Group** meeting with those who share an interest, should also contact Tri-Ada '96's conference manager R.E. Abraham & Associates at 919-419-8242; E-mail: 74117.35@compuserve.com

Social Event

Thursday Evening

"The Maiden & The Mandate" with A Taste of Philadelphia

On Thursday evening you will participate in a social event that promises to be a highlight of the Conference. While you sample the many cultural and ethnic foods of Philadelphia, Ada Core Technologies invites you to a musical extravaganza, *The Maiden and the Mandate*, a special production of the Gilbert & Sullivan comic opera, *Trial By Jury*.

See the Department of Defense finally getting tough on a contractor delivering code in C when it was supposed to be in Ada in clear violation of the Ada mandate $H^H^H^H^H^H^H^H^H^H$ policy. See Ada herself as the plaintiff, and the secretary of defense as the judge ensure that justice is done! With music by Sir Arthur Sullivan, and words inspired by W. S. Gilbert.

You can look forward to an evening of fun and networking with fellow professionals while you sample a diverse array of "Philly Food."



Tri-Ada '96 also concludes the ACM 50th ENIAC anniversary commemorative events in Philadelphia.

CONFERENCE REGISTRATION FORM

Please affix your mailing label and type or print clearly the additional required information. Photocopy additional forms if necessary.

First name, Middle initial, Surname



TRI-Ada '96

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CONFERENCE REGISTRATION

You must provide your membership number above to qualify for discount. If you are not a member, join ACM & SIGAda now and save money!

- ACM Associate Member Dues \$87 ACM Student Dues \$26 SIGAda Membership Only (non-ACM) \$48
 Add SIGAda to ACM Membership \$20 Add SIGAda to ACM Student Membership \$10 *Total Membership Fees \$ _____*

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SIGNATURE _____ **DATE** _____

	ACM/SIGADA MEMBER			NON-MEMBER			FULL-TIME STUDENT		
	BEFORE Nov. 8	AFTER Nov. 8	AMOUNT	BEFORE Nov. 8	AFTER Nov. 8	AMOUNT	BEFORE Nov. 8	AFTER Nov. 8	AMOUNT
<i>To attend the sessions & tutorial(s) of your choice, you must complete the form on the next page</i>									
1. FULL CONFERENCE (3 DAYS)* Includes one copy of proceedings, entry to exposition, and one pass to the 12/5 Social Event.	\$350	\$425	\$ _____	\$425	\$500	\$ _____	\$99**	\$99**	\$ _____
2. CONFERENCE ONLY-ANY ONE DAY <input type="checkbox"/> WED <input type="checkbox"/> THUR <input type="checkbox"/> FRI Includes one copy of proceedings and entry to exposition.	\$225	\$275	\$ _____	\$225	\$275	\$ _____	\$59	\$59	\$ _____
3. TUTORIALS-TWO DAYS	\$425*	\$525*	\$ _____	\$500*	\$600*	\$ _____	\$99**	\$99**	\$ _____
4. TUTORIALS-ONE DAY <input type="checkbox"/> TUE <input type="checkbox"/> SAT* **	\$300	\$400	\$ _____	\$375	\$475	\$ _____	\$59**	\$59**	\$ _____
5. EXPOSITION ONLY	\$25	\$25	\$ _____	\$25	\$25	\$ _____	\$10	\$10	\$ _____
6. ADD'L COPIES OF CONFERENCE PROCEEDINGS: QUANTITY _____	\$50 each	\$50 each	\$ _____	\$50 each	\$50 each	\$ _____	\$50 each	\$50 each	\$ _____
7. ADD'L GILBERT & SULLIVAN SHOW TICKETS	\$40 each	\$40 each	\$ _____	\$40 each	\$40 each	\$ _____	\$40 each	\$40 each	\$ _____
TOTAL AMOUNT ENCLOSED			\$ _____			\$ _____			\$ _____

* Full conference registrants can attend Saturday's ASEET Tutorial at no cost.
 **Full Conference *student* registrants may attend Saturday Tutorials at no additional cost.

SPECIAL NEEDS: _____

PAYMENT OPTIONS

AP

Please return this form with full payment or a copy of your Government PO or it cannot be processed. Mail or fax your registration form with credit card payment. Fees are payable to ACM TRI-Ada '96 by check, American Express, Visa or MasterCard.

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MAIL TO: TRI-Ada, PO Box 52300, Durham
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For more information, call 1-800-338-5365 (in USA and Canada only) or 1-919-419-8242
 e-mail 74117.35@compuserve.com
 Web site: <http://www.acm.org/sigada/tri-ada/>

NOTE: Those registered before November 8, 1996, will receive confirmation, registration materials and hotel, sightseeing and discount travel information by mail.

Cancellation Policy: Confirmed registrants who cannot attend, and do not send a substitute, are entitled to a refund of paid fees (less a \$50 processing fee) if a request is received in writing on or before November 8, 1996. Registrants are liable for their full fees after that date.

TUTORIAL REGISTRATION Please check-off the day(s) for which you are registering

TUESDAY

Select either one Morning & one Afternoon Session OR one Full-day Session

Morning & Afternoon Tutorials - pick one of each

Morning choices

- TU1** Software Reuse Metrics & Economic Models
- TU2** Introduction to Open Systems
- TU3** CoRE for Requirements

Afternoon choices

- TU4** How Ada 95 Promotes Safe Programming
- TU5** A Risk Based Approach to Software Metrics
- TU6** Software Component Engineering Using Ada 95
- TU7** Product Line Management & Engineering

Full Day Tutorial - select one

Full Day choices

- TU8** Ada 95 for Ada 83 Programmers
- TU9** Guaranteeing Real-Time Performance
- TU10** Domain Engineering
- TU11** Visual Ada 95 Development for WIN32

Full Day choices

- TU12** Object-Oriented Programming with Ada 95
- TU13** Ada Design Issues
- TU14** Elements of Software Architecture with Ada 95
- TU15** Object-Oriented Experiences & Future Trends

SATURDAY Full-day Tutorial - select one

- SA1** OO Features & Programming in Ada 95
- SA2** Ada & The Web
- SA3** Intro to Software Capability Maturity Model
- SA4** Artificial Intelligence with Ada

- SA5** OO A&D for Ada 95 with Colbert's OO S/W Dev Method
- SA6** Programming Distributed Applications with Ada 95/GNAT
- SA7** Design of Concurrent Software in Ada 95

Check the Tri-Ada '96 Web site regularly for updates and expanded information!
<http://www.acm.org/sigada/tri-ada/>

CONFERENCE SESSION REGISTRATION

To help in planning the seating for the conference, please check off the session that you plan to attend each day

Wednesday

- AM - WE1 WE2 WE3
- PM - WE4 WE5 WE6

Thursday

- TH1 TH2 TH3
- TH4 TH5 TH6

Friday

- FR1 FR2 FR3
- FR5 FR6

MAIL LIST USAGE - Check the following if you wish to restrict the use of your name for computer-related mailings.

- Any Mailing list (default) ACM announcements only (all SIGs) SIG-Ada use only No mail lists

HOTEL REGISTRATION FORM

Be sure to indicate you are attending Tri-Ada '96 to obtain the special conference rates.

The room block will be held until November 1, 1996.

Philadelphia Marriott Hotel Conference Headquarters
1201 Market Street, Philadelphia, PA 19107

(215) 625-2900 Fax: (215) 625-6097

- Single \$115. Double \$135. Triple \$155. Quad \$175.
- Non-smoking room requested

Name _____

Position/title _____

Organization _____

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Phone _____ Fax _____

Arrival Date _____

Expected time of arrival _____ AM/PM

Departure Date _____

A limited number of economy rate rooms have been set aside for attendees at the following nearby hotel.

Holiday Inn Express

1305 Walnut Street (two blocks from the Marriott), Philadelphia, PA 19107
(215) 735-9300 Fax: (215) 732-2682

- Single \$80. Double, Triple, and Quad \$85.
- Non-smoking room requested

Credit Authorization

Name _____

Arrival Date _____ Arrival Time _____

Credit card type American Express Master Card Visa

Credit Card Number _____

Print name as it appears on the card _____

Signature _____

To avoid duplication, please do not mail in this form if you make your reservation by telephone or telefax. PLEASE MAKE SURE ALL INFORMATION IS COMPLETE.

DISCOUNT AIRFARE

USAir is offering special discount airfare for Tri-Ada '96 conference attendees. A 10% discount off unrestricted coach fares will apply with 7 day advance reservations and ticketing required. A 5% discount off first class and any published USAir promotional round trip fares. These discounts are valid providing all fare rules and restrictions are met and is applicable for travel from the continental United States, Bermuda, Canada, and San Juan, PR. Meeting discounts are not combinable with any other discounts or promotions. Additional restrictions may apply on International travel. These meeting discounts are valid between November 30 and December 10, 1996.

FOR RESERVATIONS CALL, USAir's Meeting and Convention Reservation Office
1-800-334-8644, 8:00 AM - 9:00 PM (eastern time)

REFER TO GOLD FILE NUMBER 39900227

The special meeting fare is only available through the Meeting and Convention Reservation Office at the phone number listed above.

SPECIAL REDUCED AMTRAK FARES

Amtrak is offering Tri-Ada '96 attendees a 10% discount off their best available round-trip rail fares for travel to Philadelphia, PA from December 1-10, 1996. Call your travel agent or Amtrak at 1-800-USA-RAIL and give the agent Amtrak Fare Order Code X-95C-930. This discount is valid on all Amtrak rail service, except for peak-hour Metroliners, Amtrak's Auto Train or for accommodation charges when reserving Club Service, Custom Class Service or Sleeping accommodations.

Hotel - Philadelphia's newest convention hotel, The Philadelphia Marriott, is conveniently located in Center City, walking distance to shopping, cultural and historic attractions and easily accessible by car or train. All sessions will take place at the Marriott. Daily parking is \$20 (lower cost options within walking distance of hotel), Express Check-in, airline desk, car rental desk, gift shop, teleconferencing, safe-deposit boxes. The Reading Terminal Market, next door to the Marriott, offers dozens of food stands with a variety of choices at low prices.

Child Care - Attendees requiring child care should contact the hotel independently.

Recreation/Amusement Facilities - Indoor pool, health club, sauna, whirlpool, game room, Tennis nearby.

Attractions - Founded in 1682 by William Penn, whose statue now looks over his city from atop City Hall. The First Continental Congress met at Carpenters Hall in 1774 and at the State House, later renamed Independence Hall, patriots declared independence in 1776. World famous art exhibits at some of the world's finest museums; a lively and colorful historic district; exciting new arts and entertainment venues; a renaissance along the Delaware River waterfront...all are part of the "new" Philadelphia. Included are the treasures of the Philadelphia Museum of Art; the great sculptures of the Rodin Museum; one of America's leading science museums at the Franklin Institute Science Museum, the world's best dinosaur exhibit and natural history at the the Academy of Natural Sciences; the Pennsylvania Academy of the Fine Arts, and the Barnes Foundation, comprise the strongest collection of Impressionist paintings in the world outside of Paris.

Things to Do & See

Get thee to Philadelphia!

And bring your spouse or a friend. This hugely cultured and historic East Coast city is delightful at the Holiday period. Feel the crisp excitement and enjoy the decor of the season. Warm yourself with colonial spiced spirits and a fire. Philly is a city of neighborhoods and eateries, including fine establishments that have made it Conde Nast Traveler's "Best Restaurant City in America."

Plus, you'll be staying right across the street from the Reading Terminal Market — an authentic railroad-terminal farmers market and a treasure of Philadelphia ambiance. The Terminal is blend of a Pennsylvania Dutch farmers market, a south Philadelphia Italian market, and a host of other market flavors from stands with just about every cultural and ethnic variety of food imaginable.

In addition, at the Philadelphia Marriott you'll be situated in the city's newest convention hotel, connected to the Pennsylvania Convention Center. You'll find yourself just a few blocks from Independence Mall and the historic district.

Other cultural treasures line the nearby Benjamin Franklin Parkway, and include the Franklin Institute Science

Museum, the Academy of Natural Sciences, and the world famous Philadelphia Museum of Art — which borders Fairmount Park, the largest city park in the world and home of the Philadelphia Zoo.

The rejuvenated Delaware River waterfront, with Penn's Landing, the Maritime Museum, and much more is nearby. All this is part of the "new" Philadelphia!

What's more, you'll be staying just next door to the Gallery Mall in downtown, center city Philadelphia. You're in the second largest city on the East Coast — so get your Holiday shopping done in the Market St., Chestnut St., and Walnut St. shopping areas!

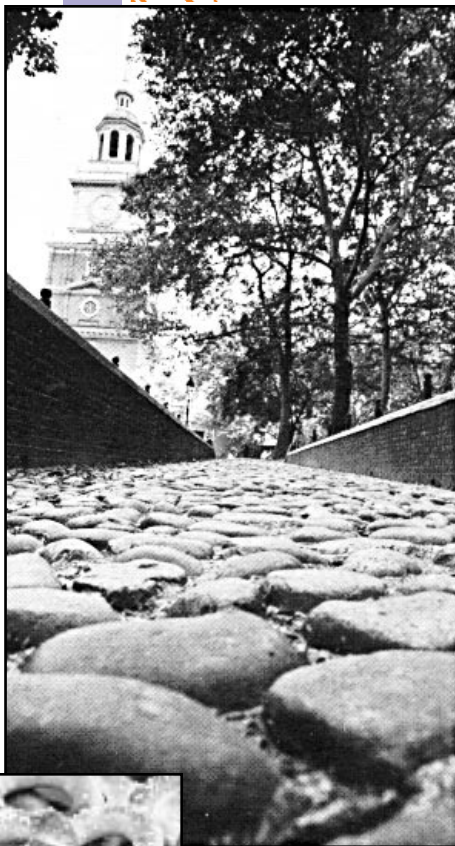
Philly is not to be missed! Cheesesteak or soft pretzel anyone?

Don't forget:

The annual Army & Navy football game will be held Saturday, December 7, 1996 at Veterans Stadium in Philadelphia.

For information on purchasing tickets to this classic Holiday clash, call 215 463-1000.

Army & Navy Game



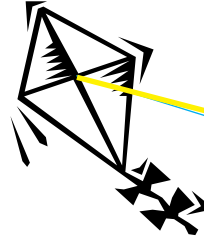
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