



# ACM SIGAda's Annual International Conference:

# SIGAda

# 2001

Thunderbird Hotel

Bloomington, MN USA

30 September - 4 October, 2001

Sponsored by ACM's Special Interest Group on the Ada Programming Language,  
In Cooperation With  
SIGAPP, SIGCAS, SIGCSE, SIGPLAN, and SIGSOFT and Ada-Europe

Hosted by Twin Cities SIGAda Chapter

## Ada Enters the 21<sup>st</sup> Century

SIGAda 2001 is your only opportunity in the U.S. this year to learn the latest developments about Ada and related technologies, from the world's leading Ada practitioners, researchers, and educators. One of the highlights of the conference will be a focus on what is in store for the next version of the language standard - find out late-breaking news on the features that are being considered, and how they will affect your use of the language. Other topics on the refereed conference program include experience reports from Ada developers and educators, new findings from the research community, and an analysis of Ada and Java for real-time programming. Supplementing the program will be a selection of exciting tutorials on Ada-related subjects, an exhibit area where you can find the latest products from vendors, and several workshops on technologies relevant to Ada. Continuing an initiative of SIGAda's Education Working Group, the conference is making a special outreach effort to involve students and educators.

Since its inception, Ada has been successful in systems where reliability is essential. Its application domains include aeronautics, air traffic control, aerospace, simulation, shipping, railway systems, communications, and many others. It is used in environments ranging from bareboard embedded devices to large-scale distributed real-time systems, and in multi-language software interfacing with C, C++, Fortran, and Java. Ada is used both in the U.S. and abroad, for both government and commercial systems, and is taught at colleges and universities where software engineering is an important focus. Whether you are from industry, government, or academia, if you are interested in where Ada is today and where it is going,

*SIGAda 2001 is a conference that you need to attend.*

## Advance Program

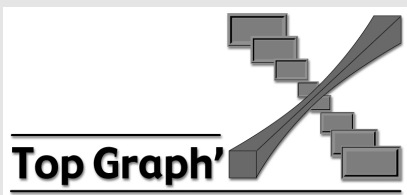
Tutorials

Workshops

Conference Program

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### Special Keynote Presentations with:

**Dr. Robert Dewar**

Ada Core Technologies

**Prof. Martin Carlisle**

U.S. Air Force Academy

**S. Tucker Taft**  
AverCom Corporation

#### Attend SIGAda 2001 to discover:

- why "Ada Finds New Life in Commercial Application and Legacy Upgrades." COTS Journal, Volume 3, Number 5, May 2001
- the late-breaking news on the features that are being considered for the next version of Ada, and how they will affect your use of the language.

For recent updates / schedule changes, please see the SIGAda 2001 Website: [www.acm.org/sigada/conf/sigada2001](http://www.acm.org/sigada/conf/sigada2001)

# SIGAda 2001 TUTORIAL PROGRAM

## Sunday Full-Day Tutorials (9:00am - 5:30pm)

### **SF1: Introduction to Ada and Object-Oriented Programming**

*David Cook, Les Dupaux & Eugene Bingue*

This tutorial is designed for those who have some familiarity with a programming language, but who are new to Ada. In the morning, we will discuss the basics of programming in Ada, to include typing, packages, syntax rules, and other Ada programming constructs. In the afternoon, we will cover the concepts of object-oriented programming, and show how object-oriented design can easily be implemented using Ada. Simple Ada programs will be constructed during the class, and the attendees will also see how to use various Ada programming environments and tools that can be downloaded for free over the web.

### **SF2: Web Application Development – Using Ada and JGNAT to develop web applications using JDBC, JSP (JavaServer Pages), Java Beans, and Java servlet technology**

*Terry Westley*

In "Web Application Development," we will survey several techniques for using Ada to build dynamic, data-rich web sites. We will then focus on learning to use Ada and JGNAT to develop web applications using JDBC, JSP (JavaServer Pages), Java Beans, and Java servlet technology.

This tutorial is best suited for those who can already build a static web page with HTML, can program in Ada, and wish to use JGNAT to take advantage of a growing set of open source tools built around Java technology for building web applications. These tools include the Apache web server, Tomcat servlet engine, MySQL database, JDBC, and JUnit. All of these technologies will be used to build a web application and will be demonstrated on a Windows XP computer as part of the tutorial.

### **SF3: CORBA 3 and CORBA for Embedded Systems**

*S. Ron Oliver*

The morning session will be an overview of CORBA 3 with emphasis on changes from CORBA 2. The attendee need have no prior knowledge of CORBA. The session will begin with a brief introduction to Distributed Computing, in general, including fundamentals of Concurrent and Real Time systems, and of Computer Networks. Thus, the attendee need not be highly experienced in these subjects. However, treatment of this introductory background material will necessarily be limited, so some familiarity with it will be useful. Most of the morning session will include discussions of the Interface Definition Language (IDL), Client programs, Object (server) programs, CORBAServices, CORBAFacilities, and the CORBA Component Model (CCM).

The afternoon session will focus on more advanced features of CORBA 3, primarily Minimum CORBA and Real Time CORBA. This session will be of particular interest to those who might wish to use CORBA for Embedded Systems. It will begin with a brief introduction to Embedded Systems and an overview of advanced CORBA features that could not be covered in the morning session.

Most of the afternoon will be devoted to Minimum CORBA and RT CORBA, introducing these standards by way of a detailed example. All examples will be based on the highly successful TopGraph'X product, ORBAda, and the Ada95 programming language.

## Monday Full-Day Tutorials (8:30am - 5:00pm)

### **MF1: Practical Experiences of Safety-Critical Ada Technologies**

*Peter Amey & Rod Chapman*

This tutorial will cover the following topics:

What is high-integrity software? What is safety-critical software? What is the difference?

- not just a question of being "more careful", special techniques are needed
- problem of showing fitness for purpose before deployment
- difficulty of demonstrating ultra-reliability by testing alone

Reliable programming in standard languages

- deficiencies of programming languages
- superficial attractiveness of special-purpose languages
- safe use of standard languages, such as MISRA-C, HRG Report, and SPARK

Standards and Projects, such as:

- Standards Overview
- DO178B and the Lockheed C130J
- Def Stan 00-55 and SHOLIS
- ITSEC E6 ("common criteria") and Mondex

Compilers

- Validation versus service history
- Desirable properties

Runtime systems

- "Small" runtimes (e.g. C-SMART, MARK)
- Ravenscar profile
- GNORT

Object Code Verification

- Why is it needed?
- The "no surprises" rule
- OCV approaches

Conclusions

## **The Making of ISO/IEC 8652: Ada 2005**

**Thursday, October 4, 10:00 am**

ISO/IEC JTC1/SC22 WG9 Ada Rapporteur Group (ARG) is in the process of defining the next generation of the Ada Language, which is expected to be an approved standard in the year 2005. A panel will provide a status update on the process and provide some insight as to the language features and their rationale that might be included in the next generation of Ada.

# SIGAda 2001 TUTORIAL PROGRAM (cont.)

## Monday Morning Tutorials (8:30am - 12:00 Noon)

### **MA1: Tasking in Ada**

*David Cook*

In most languages, writing potentially parallel code is very difficult – hard to implement and hard to test. Tasking, a construct of Ada, allows developers to design and code parallelism with great ease. This tutorial is targeted at developers who want to understand how Ada tasking works, and see how to build Ada tasks. Knowledge of basic Ada syntax is all that is required. There will be multiple examples of Ada code showing how to correctly design and code Ada tasks.

### **MA2: Ada 95 – the language for everybody, not just Ada programmers. Lessons learned teaching Ada**

*Salih Yurtass*

Programs are written as statements, blocks, procedures but software systems are designed and stored as units: both, compilation and library; either user defined or built-in. This tutorial will emphasize the need and understanding for a new teaching and learning approach in Ada-like languages, i.e., programming languages for large-scale software development.

Library, package/task/procedure with spec and body separation as separate compilation units with generic instantiation will be understood not as a complexity, but simplicity to achieve good quality in software systems; quality added by exceptions will be presented. Type extension and hierarchical reuse and maintainability will be discussed as OO aspects of Ada-95 should be understood and practiced as software development tools not algorithmic and data structure implementation features.

tutorial scheme -

- programming is searching and sorting with I/O.
- programming is decomposition and composition by procedures/functions and packages separated as spec and body.
- programming is generic reusable components by extension.
- programming is safe and reliable by exceptions.
- programming is distributed and parallel by tasks.

## Monday Afternoon Tutorials (1:30am - 5:00pm)

### **MP1: Exceptions**

*Currie Colket*

Exception processing was considered by Jean Ichbiah to be one of the 3 most important features of the Ada language. It has the power to detect serious problems in the execution of a program and return one back to a known safe state with high integrity. As such, it can be a very powerful tool for developing high quality software. Unfortunately many developers do not use the full power of exceptions. Frequently the use of exceptions is to simply log the problem and continue execution, allowing things to gracefully

degrade. In the case of Ariane 5, exceptions were raised appropriately, but the result had not been well thought out, resulting in a disaster.

This tutorial will start at the basics, discussing the Ada 83 concept of exceptions. To be effective, exceptions and their handling must be addressed at the design level and not at the code level where it is frequently performed today. This presentation will discuss several alternative approaches to addressing error handling in the design using exceptions. Ada 95 introduced some important changes to the exception area making them more effective. In particular, the addition of package Ada.Exceptions provides excellent facilities to support debugging and provides a mechanism to eliminate erroneous mapping of raised exceptions.

The use of exceptions can be assessed via automated tools. Several analyses that can be performed on a program via automated tools so the program quality can be improved will be discussed. The tutorial will conclude by addressing proposed needs for exceptions resulting from the May 2001 Exception Workshop held at Ada-Europe 2001. These needs may result in changes for the next version of the Ada language, Ada 0X.

### **MP2: A Comparison of the Concurrency and Real-Time Features in Ada, Java, and POSIX**

*Ben Brosgol*

Unlike sequential programming, the debate over whose programming language support was largely settled in the Structured Programming revolution of the early 1970s, concurrency and especially real-time programming remain subjects that elicit considerable controversy. Different languages have taken different approaches; some languages ignore the matter, believing that these topics are more in the realm of an operating system or real-time kernel.

This tutorial identifies the issues that underlie concurrency and real-time programming and describes how they are addressed by Java, Ada, and Posix. It will cover thread/task lifetime properties (creation, termination), mutual exclusion, coordination / communication, asynchrony, dealing with time, and scheduling, with a focus on real-time requirements such as management of priority inversion. Some common examples (e.g. bounded buffers, periodic activities) will be used to illustrate the different approaches, which will be compared with respect to software engineering support (readability, reliability), predictability and performance. The Java approach will be presented in terms of the two current proposed real-time extensions: the Real-Time Specification for Java (from the Sun-sponsored Real-Time for Java Expert Group) and the Real-Time Core Extensions (from the J-Consortium). The main emphasis will be on uniprocessor systems.

*For more detailed information, select "Tutorials" from <http://www.acm.org/sigada/conf/sigada2001/>*

# Summary Conference Schedule

Sunday, September 30	
9:00am - 5:30pm	Workshop: <b>Creating a Symbiotic Relationship between XML and Ada</b>
<b>TUTORIAL PROGRAM</b>	
<b>Full-Day Tutorials (9:00am - 5:30pm)</b>	
<b>SF1:</b>	<b>Introduction to Ada and Object-Oriented Programming</b> <i>David Cook, Les Dupaix &amp; Eugene Bingue</i>
<b>SF2:</b>	<b>Web Application Development – Using Ada and JGNAT to develop web applications using JDBC, JSP (JavaServer Pages), Java Beans, and Java servlet technology</b> <i>Terry Westley</i>
<b>SF3:</b>	<b>CORBA 3 and CORBA for Embedded Systems</b> <i>S. Ron Oliver</i>
6:30 - 10:00pm	Workshop: <b>Ada Semantic Interface Specification (ASIS)</b>
Monday, October 1	
<b>Full-Day Tutorials (8:30am - 5:00pm)</b>	
<b>MF1:</b>	<b>Practical Experiences of Safety-Critical Ada Technologies</b> <i>Peter Amey &amp; Rod Chapman (Praxis Critical Systems)</i>
<b>Morning Tutorials (8:30am - 12:00 Noon)</b>	
<b>MA1:</b>	<b>Tasking in Ada</b> <i>David Cook</i>
<b>MA2:</b>	<b>Ada 95 – the language for everybody, not just Ada programmers. Lessons learned teaching Ada</b> <i>Salih Yurtass</i>
<b>Afternoon Tutorials (1:30pm - 5:00pm)</b>	
<b>MP1:</b>	<b>Exceptions</b> <i>Currie Colket</i>
<b>MP2:</b>	<b>A Comparison of the Concurrency and Real-Time Features in Ada, Java, and POSIX</b> <i>Ben Brosgol</i>
5:30 - 7:00pm	<b>Local SIGAda Representatives' Dinner</b> (Open to all Ada Society Representatives)
7:00 - 11:00pm	<b>SIGAda Extended Executive Committee Meeting</b> (Open to all)

Tuesday, October 2		
9:00- 10:30am	Greetings from SIGAda Chair & Vice Chair for Meetings and Conferences  Introduction of Conference Officers and SIGAda Officers  Keynote Address: <b>Future Development of the Ada Language</b> , <i>Robert Dewar (Ada Core Technologies)</i>	
10:30 - 11:00am <b>Mid-morning Break - Exhibits Open</b>		
11:00am - 12:30pm	<b>Languages for Systems not Software</b> <i>Peter Amey (Praxis Critical Systems)</i>  <b>Real-Time Convergence of Ada and Java</b> <i>Ben Brosgol (Ada Core Technologies) &amp; Brian Dobbins (Praxis Critical Systems)</i>	
12:30 - 2:00pm <b>Mid-day Break and Exhibits</b>		
2:00 - 3:30 pm	<i>Parallel Tracks</i>	
	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>Ada 95 Bindings for the NCSA Hierarchical Data Format Libraries</b> <i>Bruce Barkstrom (NASA Langley Research Center)</i>   <b>Automating Software Module Testing for FAA Certification</b> <i>Usha Santhanam (Boeing)</i> </td> <td style="width: 50%; vertical-align: top;"> <b>Implementing a Product-Line Based Architecture based on Ada</b> <i>Joel Sherrill, Jennifer Averett, &amp; Glenn Humphrey (On-Line Applications Research Corporation)</i>   <b>Ship System 2000, a Stable Architecture under Continuous Evolution</b> <i>Björn Källberg &amp; Rei Strähle (SaabTech Systems)</i> </td> </tr> </table>	<b>Ada 95 Bindings for the NCSA Hierarchical Data Format Libraries</b> <i>Bruce Barkstrom (NASA Langley Research Center)</i>  <b>Automating Software Module Testing for FAA Certification</b> <i>Usha Santhanam (Boeing)</i>
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3:30 - 4:00 pm <b>Afternoon Break &amp; Exhibits</b>		
4:00 - 5:30pm	<b>Reengineering an Ada95-programmed Command and Control Information System by Using UML</b> <i>Heinz Faßbender (Research Institute for Communication, Information Processing, and Ergonomics)</i>  <b>Electronic Maneuvering Board and Dead Reckoning Tracer Decisions Aid for the Officer of the Deck</b> <i>Kenneth L. Ehresman &amp; Joey L. Frantzen (U.S. Navy)</i>	
5:00 pm <b>Adjourn</b>		
6:30 - 9:00pm	Dinner/Presentation Meeting - Don't Miss Out on this Presentation on Hardware Virtual machines for High-Level Languages	

For more detailed information, select "Tutorials" from [www.acm.org/sigada/conf/sigada2001/](http://www.acm.org/sigada/conf/sigada2001/)

Wednesday, October 3	
9:00-10:30am	Announcements SIGAda Awards Keynote Address: <b>Confessions of an Academic Ada Zealot</b> , <i>Martin Carlisle (United States Air Force Academy)</i>
10:30 - 11:00am <b>Mid-morning Break and Exhibits</b>	
<i>Parallel Tracks</i>	
11:00am - 12:30pm	<b>Teaching Computer Science with Robotics Using Ada/Mindstorms</b> <i>Barry S. Fagin, Laurence D. Merkle, &amp; Thomas W. Eggers (U.S. Air Force Academy)</i>  <b>Using Ada 95 in a Compiler Construction Course</b> <i>S. Tucker Taft (AverCom Corporation - A Titan Company)</i>
	<b>Beyond ASIS: Program Data Bases and Tool-Oriented Queries</b> <i>Janusz Laski (SofTools, Inc.)</i>  <b>Targeting Ada 95 / DDS for Distributed Simulation of Multiprotocol Communication Networks</b> <i>Dhavy Gantsou (University of Valenciennes)</i>
12:30 - 2:00pm <b>Mid-day Break and Exhibits</b>	
2:00 - 3:30pm	<b>Keynote Address: Fixing Software Before It Breaks</b> , <i>S. Tucker Taft (AverCom Corporation - A Titan Company)</i>
3:30 - 4:00pm <b>Afternoon Break</b>	
<i>Parallel Tracks</i>	
4:00 - 5:30pm	<b>Dynamic Analysis for Locating Product Features in Ada Code</b> <i>Laura White &amp; Norman Wilde (University of West Florida)</i>  <b>Detecting Concurrently Executing Pairs of Statements using an Adapted MHP Algorithm</b> <i>Zhenqiang Chen (Southeast University), Baowen Xu (Wuhan University), &amp; Huiming Yu (North Carolina A&amp;T State University)</i>
	<b>Vetronics Technology Testbed: Experience Report</b> <i>William W. Pritchett &amp; Brian Wood (DCS Corporation)</i>  <b>An Object-Oriented Metrics Suite for Ada 95</b> <i>William W. Pritchett &amp; Larisa Wells (DCS Corporation)</i>
6:30 - 10:00pm	Workshop: <b>Comparison of Concurrency in Java, C++, and Ada</b> Birds-Of-a-Feather (BOF) sessions ( <i>contact Workshops Chair to propose a BOF</i> )

Thursday, October 4	
9:00-9:45am	Experience Report: <b>Architecture-based Software Development on the Crusader Program</b> <i>Scott Edgerton (United Defense, L.P.)</i>
9:45 - 10:00am <b>Short Break</b>	
10:00am-12:00 Noon	<b>Panel: The Making of ISO/IEC 8652: Ada 2005</b> Panel Chair: <b>Erhard Ploedereder</b> , <i>University of Stuttgart (President of Ada-Europe and Past Chair of WG9 ARG)</i> Panelists: <b>Joyce Tokar</b> , <i>DDC-I (Head of Delegation, ANSI Technical Advisory Group)</i> <b>Randy Brukardt</b> , <i>RR Software (WG9 ARG Editor)</i> <b>Pascal Leroy</b> , <i>Rational Software Corporation (Chair of WG9 ARG), &amp;</i> <b>S. Tucker Taft</b> , <i>AverCom Corporation - A Titan Company (Chief Designer of Ada95)</i>
	12:00 Noon <b>Closing Comments</b>

Gaining Software Reliability and Efficiency Through the Use of a Hardware Virtual Machine for High-Level Languages

Why Your Next CPU Should Provide Hardware Support for Multitasking and Multiple Virtual Machines

David S. Hardin  
Chief Technology Officer, aJile Systems, Inc.

Tuesday, October 2, 2001, 6:30p.m.

The ample transistor budgets of modern silicon fabrication present CPU designers with a number of options as to how best to spend their budgets. A design alternative is to devote silicon resources to directly support current software development practice, such as multitasking and threading, compilation to virtual machine code, object-oriented method dispatch and field access, safe mobile code execution, etc. In this talk, we will describe one such CPU design, the aJile Systems aJ-100, and show how it efficiently supports modern software engineering practice, including hardware support for objects, tasks/threads, and Java bytecode execution, as well as multiple processes brickwalled in space and time. We will particularly demonstrate how such an architecture provides advantages for the Java and Ada95 developer, through the use of JGNAT from ACT.

This presentation is a dinner meeting co-hosted by several Twin Cities computer oriented organizations. All conference registrants receive a complementary ticket to the dinner and presentation. Additional tickets are \$30 prior to 15 Sept 2001 and \$40 (space available) thereafter. Your ticket also gains you admission to the exhibits for SIGAda 2001. You may purchase your ticket online through the SIGAda 2001 conference registration site, or may see a representative from any of the co-hosting organizations.

For more up-to-date information, visit our conference website:  
[www.acm.org/sigada/conf/sigada2001](http://www.acm.org/sigada/conf/sigada2001)

For more detailed information on Workshops and BOFs, visit:  
[www.acm.org/sigada/conf/sigada2001/](http://www.acm.org/sigada/conf/sigada2001/)

## CONFERENCE COMMITTEE

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## EXHIBITORS

SIGAda 2001 will include vendor participation, featuring presentations on their products and services. For specific information, please contact the Exhibits Chair; Hal Hart, +1-310-764-6880, E-mail: [Hal.Hart@acm.org](mailto:Hal.Hart@acm.org) or see:

[www.acm.org/sigada/conf/sigada2001/exhibits/](http://www.acm.org/sigada/conf/sigada2001/exhibits/)

## CONFERENCE VENUE

We are very pleased to hold the SIGAda 2001 Conference at the Thunderbird Hotel & Convention Center. Additional information on the Thunderbird can be found on the Conference Website: [www.acm.org/sigada/conf/sigada2001/](http://www.acm.org/sigada/conf/sigada2001/)

## CONFERENCE HOTEL

The Thunderbird Hotel is located in Bloomington Minnesota within walking distance of the Mall of America. Information on the hotel is available on the Conference Website: [www.acm.org/sigada/conf/sigada2001/](http://www.acm.org/sigada/conf/sigada2001/).

**Note:** The Thunderbird Hotel provides free shuttle between the hotel, the airport, and the Mall of America.

## GRANTS TO EDUCATORS

As in past years, SIGAda is offering grants to educators to attend the conference. Grants cover the registration and tutorial fees; travel funds are not available. Details on the grant program are available from: **Prof. Michael B. Feldman**  
E-mail: [mfeldman@seas.gwu.edu](mailto:mfeldman@seas.gwu.edu) or see: [www.acm.org/sigada/conf/sigada2001/](http://www.acm.org/sigada/conf/sigada2001/)

Applications are due by e-mail no later than September 7, 2001.

*Faculty members are encouraged to bring the Student Work-Grant opportunity below to the attention of their best Ada students.*

## STUDENT WORK-GRANTS & DAILY NEWSLETTER

SIGAda 2001 will feature a daily newsletter Ada's Window on the World (Ada-WOW), mixing interviews with key people, session summaries, and previews of next-day activities with local color, general computing thought pieces, and relevant world news briefs in an informal, fun format. A limited number of student grants are available to staff Ada-WOW. Work involves full participation in conference activities, writing some of the articles, and production editing for some; an estimated 2-3 hours of newspaper work nightly will be required, Monday - Wednesday (Sunday, too, for those who arrive by then). Benefits include free lodging (2 or more per room) and free conference & tutorial registration. A room with computer production facilities will be provided.

Interested students should contact Ann Brandon at [abrandon@sover.net](mailto:abrandon@sover.net)

## WORKSHOPS

Focused workshops are important in evolving Ada technology to better meet the needs of the Ada community. Workshops are free for those registered for the conference. The following workshops are planned for SIGAda 2001:

1. **Creating a Symbiotic Relationship between XML and Ada**, Robert Leif  
Sunday, September 30, 9:00am
2. **Ada Semantic Interface Specification (ASIS)**, Currie Colket  
Sunday, September 30, 6:30pm
3. **Comparison of Concurrency in Java, C++, and Ada**, Paul Stachour  
Wednesday, October 3, 6:30pm

Workshop descriptions will be on the SIGAda 2001 Home Page when they are available. Additional workshops or Birds-of-a-Feather (BOF) are welcome. Workshops have a focused objective and result in a report to be published in Ada Letters. BOFs are informal discussion groups. If you would like to propose a Workshop or BOF, please contact the Workshops Chair, Jim Hassett E-mail: [hassett@acm.org](mailto:hassett@acm.org)

# SIGAda

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# ACM SIGAda Annual International Conference

Twin Cities, Minnesota -- 30 September to 4 October 2001

## SIGAda 2001 Advance Registration Form

For On-Line registration, see [www.acm.org/sigada/conf/sigada2001/](http://www.acm.org/sigada/conf/sigada2001/)

Name (First Middle Initial Family Name): \_\_\_\_\_

Title: \_\_\_\_\_

Badge Name (as you wish it to appear): \_\_\_\_\_

Organization/Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State/Province: \_\_\_\_\_

Zip/Postal Code: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Electronic-Mail: \_\_\_\_\_

Sponsoring or Cooperating Society & Member Number: \_\_\_\_\_

You must provide your membership number to qualify for a discount. If you are not a member, join SIGAda and/or ACM now, and save money. Do not include my name, address and e-mail address in the conference attendee listing \_\_\_\_\_

### Conference Rates

	Member		Non-Member		Student	
	On/Before 4 Sep	After 4 Sep	On/Before 4 Sep	After 4 Sep	On/Before 4 Sep	After 4 Sep
<b>Conference All 3 Days</b>	\$400	\$550	\$550	\$700	\$50	\$50
<b>Conference One Day</b>	\$250	\$250	\$250	\$250	\$50	\$50
<b>Tutorial 2 Days</b>	\$500	\$600	\$700	\$800	\$50	\$50
<b>Tutorial 1 Day</b>	\$350	\$450	\$450	\$550	\$25	\$25

Conference: Includes entry to all conference sessions, exhibits, Tuesday Dinner/Presentation, and copy of Proceedings  
Conference - Any one Day: Includes conference sessions, exhibits, Tuesday Dinner/Presentation, and copy of Proceedings  
Tutorials - Two Days: Includes Tutorial sessions totaling 2 days, exhibits, and a full tutorials CDROM  
Tutorials - One Day: Includes Tutorial sessions comprising one full-day or two half-days, exhibits, and a full tutorials CDROM

### Payment Computation

Conference Fee \$ \_\_\_\_\_  
Tutorials Fee \$ \_\_\_\_\_  
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Or fax to +1-301-604-3204  
Registration Form Version: AP0106

Those registered before September 4, 2001 will receive confirmation by fax or mail.

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Sunday Full Day \_\_\_\_\_  
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A block of rooms has been set aside for SIGAda 2001 attendees at the rate of **US\$86 single or double** per night (this is below the US government per-diem rate for Bloomington, Minnesota USA). Please identify your affiliation with **SIGAda 2001** to receive this rate. Rooms in this block will be available at this favorable rate **until 15 September 2001**, after which the Conference rate or room availability cannot be guaranteed. Register early to obtain the Conference rate. Please make reservations directly with Best Western *The Thunderbird* Hotel & Convention Center, 2201 East 78th Street, Bloomington, MN 55425. Phone: +1.952.854.3411, Toll-Free Phone +1.800.328.1931 (M-F, 8:00am - 5:00pm CDT), FAX: +1.952.854.1183.

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