SIGAda

The ACM Special Interest Group on Ada

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SIGAda Annual Report
1 July 2003 - 30 June 2004

30 July 2004

SIGAda is chartered under ACM as one of approximately 35 Special Interest Groups. This document represents an annual report for the SIGAda Activities for the ACM calendar year of 1 July 2003 to 30 June 2004.

SIGAda Purpose

Our By-Laws, approved on 18 June 1984 identify that SIGAda's activities will include:

1. Collecting and disseminating information in the specialty, through a newsletter and other publications approved by the Publications Board of the ACM;
2. Organizing sessions at conferences of the ACM;
3. Sponsoring conferences, symposia, and workshops;
4. Organizing working groups for education, research, and development;
5. Serving as a source of technical information for the Council and subunits of the ACM;
6. Serving as an external technical representative of the ACM when authorized by the Council or the Executive Committee of the ACM;
7. Working with subunits of the ACM on technical activities such as lectures or professional development seminars;
8. Fostering the organization of local groups and activities;
9. Determining and representing members' opinions with respect to the specialty; and
10. Interacting with non-ACM organizations. Such relationships will be in accordance with ACM guidelines regarding external relationships.

SIGAda Mission Statement

The SIGAda Mission is updated periodically to reflect SIGAda's mission. It is found in the SIGAda Fact Sheet. The current version is posted online at: http://www.acm.org/sigada/sigada_fact_sheet.html. The Mission Statement reads:

ADVANCING HUMAN CAPABILITIES   THROUGH INFORMATION TECHNOLOGY

ACM SIGAda
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The ACM SIG on Ada deals with the Ada language and a broad span of issues related to its usage, teaching, standardization, and implementation. SIGAda members include practitioners, educators, researchers, and managers from a wide range of organizations in industry, academia, and government. Among the topics that SIGAda addresses are software engineering practice (with a particular focus on object technology), real-time applications, high-integrity & safety-critical systems, software education, and large-scale system development. SIGAda explores these issues through an annual international conference, special-purpose Working Groups, active local chapters, and its quarterly Ada Letters publication.

SIGAda Description for ACM Guide

ACM publishes a Guide to describe all of its SIGs. The ACM Guide is updated annually as an advertisement for its SIGs and to encourage ACM members to join the SIGs. The current version of the ACM Guide is posted online at: http://www.acm.org/sigs/guide98.html (sic). The description of SIGAda in the Guide reads:

The ACM Special Interest Group on Ada Programming Language provides a forum on all aspects of the Ada language and technologies, including usage, education, standardization, design methods, and compiler implementation. SIGAda's annual conference addresses Ada's role in building industrial-strength applications that support mission-critical, safety-critical, real-time, distributed, high-assurance, and high-integrity requirements. Supporting technologies that SIGAda focuses on include software engineering, software development processes, object technology, computer science education, tools, Common Object Request Broker Architecture (CORBA), and Java.

SIGAda Executive Committee

The SIGAda Executive Committee (EC) consists of 6 elected officers: the Chair, Vice Chair for Meetings and Conferences, Vice Chair for Liaison, Treasurer, Secretary, and International Secretary. The EC also includes the Past Chair for continuity from one administration to the next. The current slate was elected in 2001 for the term 1 July 2001 to 30 June 2003. The time period has been extended until 30 June 2005. The current slate includes:

Chair:	Mr. Currie Colket
Vice Chair for Meetings and Conferences:	Mr. David Harrison
Vice Chair for Liaison:	Ms. Ann Brandon
Treasurer:	Dr. John McCormick
Secretary:	Mr. Clyde Roby
International Representative:	Dr. Jean-Pierre Rosen
Past Chair:	Dr. Ben Brosgol

Elections are planned for early 2005.

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ACM SIG Staff Liaison

The ACM SIG Staff Liaison supporting SIGAda is Ms. Irene Frawley. We have been pleased with the wonderful support Ms. Frawley has provided. We would also like to acknowledge the wonderful support from all of the ACM staff during 1 July 2003 to 30 June 2004.

ACM SIGAda Annual International Conference on the Ada Programming Language (SIGAda 2003) – Our Annual Conference

The ACM SIGAda Annual International Conference on the Ada Programming Language (SIGAda 2003) was held in San Diego, California from 7-11 December 2003. The conference was successful from a technical and financial perspective. There were 82 attendees. 25.6% of the attendees were from overseas, representing the countries of Australia, Belgium, France, Gambia, Germany, Italy, Korea, the Netherlands, Spain, Switzerland, Turkey, and the UK. Proceedings were produced as a printed hardcopy, which was distributed at the conference and as an electronic CDROM distributed after the conference. This CDROM has a host of interesting papers and presentations not provided with the hardcopy of the proceedings. In particular, the slide sets from our keynote speakers and invited speakers are available.

There is much interest in the new Ada language amendment, called Ada 2005. Dr, Joyce Tokar was the lead keynote speaker. She set a wonderful tone for the conference with her presentation titled: "The Soul of a New Machine." She highlighted some of the important innovations in recent history, which included SPARK Ada, Raven SPARK, Architecture Description Languages, and A#. She tied these in with the enduring solutions of innovation and success, which included: the Capability Maturity Model (CMM), Collaborative Programming, and Extreme Programming. Appropriately, this was followed by Dr. Martin Carlisle's presentation on A# on programming Ada in the .NET environment and by Dr. Roderick Chapman's presentation on Static Verification and Extreme Programming. Later Dr. Ben Brosgol gave a thought provoking presentation on "Ada and Real-Time Java: Cooperation, Competition, or Cohabitation?"

On Wednesday, Mr. David Wheeler gave an interesting presentation on Security, Open Source, and Ada. He talked about major trends in each area and how well Ada matches the trend. Wednesday afternoon was devoted to the new Ada Amendment scheduled out toward the end of 2005. Mr. James Moore, Convenor of ISO/IEC JTC 1/SC 22 WG9, described the WG-9 Work Programme and the plans for amending the Ada language. Part of the new language specification will adopt the Ravenscar Profile. Dr. Tullio Vardanega gave a presentation on this important work by the Safety and Security Rapporteur Group (HRG), which allows a restricted Ada tasking to be used in systems of the highest integrity. Prior to the Ravenscar Profile, Ada tasking was not really welcome in these systems. Dr. Pascal Leroy, the Chair of the WG-9 Ada Rapporteur Group described a number of key improvements that are currently under consideration for inclusion on Ada 2005.

On Thursday morning, Mr. Eric Potratz presented an excellent paper titled "A Comparison of Java to Ada in Implementing a Real-Time Embedded System." This comparison took place using a model train track where computers controlled the switching and speeds of a number of trains. He received the SIGAda 2003 Outstanding Student Paper Award, which included a Statuette of Ada and a check for $500. The last presentation for the SIGAda 2004 was a presentation by Lt. Col Rickey E. Sward of the Air Force Academy describing why Ada is the primary language taught there.

Very special thanks to Dr. Robert Leif (General Chair), Lt. Col. Ricky E. Sward (Program Chair), Mr. Greg Gicca (Exhibit Chair), Mr. Mark Glewwe (Publicity Chair), Mr. Clyde Roby (Webmaster and

Proceedings Chair), Mr. Hal Hart (Treasurer), Dr. David Cook (the Tutorials Chair), Dr. Alok Srivastava (Workshops Chair), Mr. Tom Panfil (Registration Chair), Dr. Michael Feldman (Education Working Group Chair), and Mr. David Harrison (Vice Chair for Meetings and Conferences) for an excellent conference. Every conference we have conducted since 1999 has been financially successful.

We would like to thank our Corporate Sponsors: Ada Core Technologies (Platinum Level), Esterel Technologies (Gold Level), Aonix, I-Logic, IBM/Rational, PolySpace Technologies, Quality Checked Software, and TNI Europe (Silver Level) for helping to make SIGAda 2004 successful..

Our next conference will be at Atlanta, Georgia from 14-18 November 2004. The venue will be at the DoubleTree Atlanta Buckhead Hotel. It is right next door to a MARTA station, making it convenient for recreational and sight-seeing attractions throughout Atlanta. For more information, please see: *http://www.acm.org/sigada/conf/sigada2004* (or *http://www.sigada.org/conf/sigada2004/*). Dr. John McCormick, University of Northern Iowa, is the Conference Chair; Dr. Ricky E. Sward, US Air Force Academy, is the Program Chair.

Ada Letters, SIGAda's Quarterly Newsletter

SIGAda publishes 4 newsletters on an annual basis. The newsletter provides an excellent means to stay current in the Ada community. The Managing Editor is Dr. Martin Carlisle, USAF Academy and the Technical Editor is Mr. Pat Rogers, Software Arts and Sciences. Both have done an excellent job in producing a key resource to our SIGAda membership. It should be noted that ACM sets deadlines for newsletter submissions. SIGAda has a reputation at ACM for always being on time. The 4 newsletters published from 1 July 2003 – 30 June 2004 are summarized as:

Issue	Dated	Major Contents
Volume XXIII Number 3	September 2003	• SIGAda Annual Report – Currie Colket • A Plan for Producing a Conventional Ada Library – Marin Condic • An Introduction to Ada 2005 – Pascal Leroy
Volume XXIII Number 4	December 2003	• Proceedings of the 12th International Real-Time Ada Workshop held in Pousada Monte do Sta. Luzia, Viana do Castelo, Portugal from 15-19 September 2003.
Volume XXIV Number 1	March 2004	• Proceedings of the SIGAda 2003 held in San Diego, California from 7-11 December 2003.
Volume XXIV Number 2	June 2004	Special Report • Guide for the use of the Ada Ravenscar Profile in High Integrity Systems— Burns, Dobbing, and Vardanega

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Ada Advocacy

Since 1994 SIGAda has conducted an "Ada Awareness Initiative". Its centerpiece has been our SIGAda professional booth display unit in exhibition halls at important software engineering conferences. This lets folks know that Ada is very much alive and a sound part of any software engineering effort having real-time, high integrity, high-assurance, and highly distributed requirements. We typically go to about two to four conferences a year. Via this exhibiting, SIGAda sustains Ada visibility ("name recognition"), provides various Ada-advocacy materials such as dozens of "Ada Success Stories" and the Walnut Creek Ada CD-ROM, and makes available Ada experts (our booth staff volunteers) who can intelligently answer questions, provide pointers and help, and debunk the misinformation about Ada that many attendees at these shows have. This program has been extremely successful and viewed as a highly important thrust in a recent fall 2002 survey of the SIGAda membership. We thank Mr. Hal Hart and Ms. Ann Brandon for leading this important effort. SIGAda graciously acknowledges and thanks the Ada Resources Association (ARA), a consortium of Ada vendors, for their financial support of SIGAda's Ada Awareness Initiative and our booth activities. The shows supported from 1 July 2003 to 30 June 2004 included:

Dates	Location	Conference
3-7 March 2004	Norfolk Virginia	SIGCSE 2004: SIGCSE 2004 Symposium
19-22 April 2004	Salt Lake City, Utah	System & Software Technology Conference (SSTC 2004)

Note: A frequent conference in past years was the Object Oriented Programming Systems Languages and Applications (OOPSLA). OOPSLA no longer has an exhibit hall. The other frequent conference, the Embedded Systems conference was impossible this year due to logistics problems.

SIGAda Awards

Started in 1994, the ACM SIGAda Awards recognize individuals and organizations that have made outstanding contributions to the Ada community and to SIGAda. The two categories of awards are:

> **Outstanding Ada Community Contribution Award**
> For broad, lasting contributions to Ada technology & usage.
> **ACM SIGAda Distinguished Service Award**
> For exceptional contributions to SIGAda activities & products.

The ACM SIGAda Award Committee (volunteers who have previously won an award) selects recipients from nominations submitted by SIGAda membership and other members of the Ada community.

SIGAda awards, in the form of the statuette of Lady Lovelace, are typically presented at the SIGAda conference each fall, with nominations closing approximately one month before the conference.

Awards presented during 1 July 2003 to 30 June 2004 were:

> Michael González Harbour (University of Cantabria, Spain) - Outstanding Ada Community Contribution Award
> Leslie Dupaix (Software Technology Support Center) - SIGAda Distinguished Service Award
> S. Ron Oliver (caress Corporation) - SIGAda Distinguished Service Award

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LIAISON WITH ISO/IEC JTC 1/SC 22 WG9

ISO/IEC JTC1/SC22 WG9 is that body of international representatives responsible for the maintenance and evolution of the Ada International Standard. The National Bodies represented on WG9 are Canada, France, Germany, Italy, Japan, Switzerland, the United Kingdom, and the United States.

WG9 is planning to produce an Amendment to the existing Ada standard, ISO/IEC 8642:1995 in lieu of developing a major revision as was done in 1995. In 2000, the Ada International Standard was updated with a Technical Corrigendum 1 (COR.1:2000). This Technical Corrigendum provided some needed maintenance corrections to the Ada language. However, it was limited to making corrections only. Either an Amendment or a Revision is required to keep the language up to date by supporting new programming usage and paradigms. An Amendment could be written so that it incorporates noticeable changes intended to add value to the Ada community. These changes could be significant improvements intended to stimulate interest in both the current Ada community and potential users in the software engineering community. WG9 is planning to update the Ada International Standard using the Amendment approach.

Please note that SIGAda will be playing a prominent role in the evolution of the Amendment. To achieve such a role, a formal liaison has been established between SIGAda and WG9. Mr. James W. Moore, Chair of WG9, has invited ACM SIGAda to become a Category C Liaison with WG9. Category C liaisons are liaisons to organizations that make an effective technical contribution and participate actively at the WG level. A formal Liaison request titled: ***Request for Establishment of Category C Liaison between SC 22/WG 9 and the Association for Computing Machinery's Special Interest Group on Ada (SIGAda)*** has been formally approved by the SIGAda Executive Committee and the ACM Executive Committee (EC). This document was published in the June 2002 Ada Letters and has been embodied in WG9 document N407. At the 21 June 2002 WG9 meeting, the request was formally approved unanimously as Resolution 42-5. It reads: ***"In accordance with 3.3.1.1 of the JTC1 Directives, ISO/IEC JTC1/SC22/WG9 confirms the Category C liaison request of ACM SIGAda contained in N407 and forwards the request to SC22 for its consideration and any actions needed to effect approval of the liaison."*** The liaison agreement has now been approved by ISO. Mr. Keith Brannon from the ISO/IEC Information Technology Task Force sent SIGAda a letter stating: *"With reference to your request to ISO/IEC JTC 1/SC 22 for the establishment of Category C liaison with SC 22/WG 9, after consulting ISO/IEC JTC1 we can confirm that Category C liaison has now been officially established between ISO/IEC 1/SC22/WG9 and your organization."* The letter is dated 5 November 2002. The text of the Liaison Agreement is published in the December 2002 issue of Ada Letters and provided via the SIGAda Home page.

The benefits to SIGAda are identified in the liaison agreement. In addition, this will also provide extra value to a SIGAda membership, in that:
- SIGAda members will be allowed to see the draft WG9 documentation for the next Ada Standard in its early stages. This documentation has not been made available to us before.
- SIGAda members will be allowed (collectively) to comment on the draft WG9 documentation, thus potentially impacting the standard;
- SIGAda members will have an important role in the management of Ada Application Program Interfaces (APIs); and
- SIGAda members (collectively) can play a more active role in the evolution of the Ada standard should they choose to do so.

SIGAda has already been the beneficiary of this agreement as WG9 provided valuable information on the future of Ada during both the WG9 Forum at SIGAda 2002 and the SIGAda 2003 Conference with three significant presentations. Conference attendees provided input to proposed changes to the Ada language.

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SIGAda views this role to be of great value to its membership and extremely important to the Ada community. WG9 is already planning to put on a three hour Ada 2005 Panel at SIGAda 2004.

SIGAda is extremely pleased that ISO/IEC JTC1/SC22 WG9 has honored us by requesting that it become a Category C Liaison. This is a strong indication of ACM SIGAda's value to the international Ada community. Such a liaison will be valuable to SIGAda's membership and potentially attract new members.

New SIGAda Working Group Proposed

In conjunction with our new role as Category C Liaison with WG9, SIGAda has initiated a program to manage Ada Application Program Interfaces (APIs). Management of APIs could be an important step towards the eventual standardization of APIs through ISO/IEC JTC 1/SC22 WG9. At SIGAda 2002 and again at SIGAda 2003, Mr. Clyde Roby chaired a workshop to address a *Plan for Ada Application Program Interfaces (API) Management.* Both Workshops were extremely well received. Valuable input was made to the plan. The intent is that Ada-Europe, SIGAda, and WG9 can work together to provide a valuable service to the Ada community for managing Ada bindings to APIs. The revised plan is significantly improved and available on line from the SIGAda Home Page for the API Working Group at http://www.acm.org/sigada/wg/apiwg/. APIWG will soon be chartered as part of this plan.

In Cooperation With (ICW) Ada-Europe

Ada-Europe is an international organization, set up to promote the use of Ada. It aims to spread the use and the knowledge of Ada and to promote its introduction into academic and research establishments. Above all, Ada-Europe intends to represent European interests in Ada and Ada-related matters.

In its current form, Ada-Europe was established in 1988. As there is no European legal framework to govern such organizations, it was established according to Belgian Law. Currently, the member organizations are: Ada-Belgium, Ada-Denmark, Ada-Deutschland, Ada-France, Ada-Spain, Ada in Sweden, Ada in Switzerland and Ada UK. The best-known of Ada-Europe's activities is its annual conference, the International Conference on Reliable Software Technologies, which provides the European forum for researchers and users of Ada and other technologies geared towards reliable systems.

For many years, SIGAda and Ada-Europe have maintained an ICW relationship with each other. This year SIGAda supported three Ada-Europe VIPs to our SIGAda 2003 Conference in San Diego, California: Dr. Erhard Ploedereder, Dr. Tullio Vardanega, and Mr. Dirk Craeynest. In exchange, Ada-Europe supported three SIGAda VIPs to their Ada-Europe 2004 conference in Palma de Mallorca, Spain from 14-18 June 2004: Mr. Currie Colket, Ms. Ann Brandon, and Lt. Colonel Ricky Sward. The exchange has proven to be valuable to both organizations and the international Ada community.

Their next conference (the 10th International Conference on Reliable Software Technologies - Ada-Europe 2005) is scheduled for 20-24 June 2005 in York, UK.

SIGAda Home Page

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One of the important means of providing up-to-date accurate information to our membership is the SIGAda Home Page. Located at http://www.acm.org/sigada/ and linked from http://www.sigada.org, the home page has major sections on Ada Advocacy, the Ada Community, Ada Frequently Asked Questions (FAQs), Basic Ada Information, Creating Ada Software, Joining SIGAda or ACM, SIGAda Conferences, SIGAda Organizational Information, and SIGAda Working Groups.

We also have approximately 25 maillists to support a variety of communication needs. In the past, most of the lists had been open subscription and open posting. We had been targeted by spammers and began a campaign to tighten up the maillists by eliminating html and other attachments, requiring editor subscriptions, blind reviews of list members, and in some cases moderated postings. This effort has significantly eliminated spam returning the functionality and value of the lists back to SIGAda. We are grateful to have a very skilled webmaster, Mr. Clyde Roby, who keeps the vast information on the SIGAda Home Page relevant to our membership.

SIGAda Local Chapters

At one time SIGAda had 14 local chapters. Only five of these chapters are active today: Baltimore SIGAda Chapter, San Diego SIGAda Chapter, Los Angeles SIGAda Chapter, Twin Cities SIGAda Chapter, and DC SIGAda Chapter. In general, each chapter conducts local meetings, serves as a source of local expertise in Ada, and supports the local Ada community. These local chapters have been extremely valuable to ACM SIGAda by serving as hosts for our SIGAda conferences. All local chapters are managed separately under ACM.

SIGAda Working Groups

SIGAda charters Working Groups to focus on a variety of technical interests of importance to our membership. These working groups have played a significant role in shaping the Ada standard by addressing issues that later became standardized via the ISO process. Such Working Groups include: the Ada Language Issues Working Group (ALIWG), Performance Issues Working Group (PIWG), Numeric Working Group (NUMWG), Ada Run Time Environment Working Group (ARTEWG), and Ada Semantic Interface Working Group (ASISWG). The Education Working Group (EDUWG) played a significant role in educating the Ada community and addresses academic issues for each of our annual conferences. Currently the active Working Groups include ASISWG and EDUWG. As noted earlier, the Ada Applications Programming Interfaces Working Group (APIWG) is forming.

Conclusion

SIGAda has served a valuable role to the international Ada community during the 1 July 2003 to 30 June 2004 time frame. It has done so through a number of important activities to include our annual conference, our quarterly newsletter, our Ada Advocacy Initiative, our liaisons with ISO/IEC JTC 1/SC 22/WG9 and Ada-Europe, our SIGAda home page, our SIGAda Working Groups, and our SIGAda Local Chapters. We are extremely fortunate to have a large number of dedicated volunteers who want to be part of the larger picture. We believe that there are ongoing requirements for languages that support industrial strength engineering solutions. The Ada language meets the requirements that it was originally designed to satisfy large-scale, long-lived, high-integrity, real-time embedded applications. Ada survived the period when it was most at risk during the 1997-98 time period when the Ada Joint Program Office (AJPO) closed. Ada usage now appears to be on the rise and Ada is expanding into new domains. We believe that

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ACM SIGAda, Ada-Europe, the ARA, and ISO/IEC JTC 1/SC 22 WG9 are cooperative forces providing important benefits to the international Ada community.

Sincerely yours,

Currie Colket
Chair ACM SIGAda