

# SIGAda

The ACM Special Interest Group on Ada

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Dear SIGAda Members:

We are pleased to dedicate this issue for the reprint of one of the most significant Ada documents, the *Guide for the use of the Ada Ravenscar Profile in High Integrity Systems*, by Dr. Alan Burns [University of York], Mr. Brian Dobbing [Praxis Critical Systems Ltd.], and Dr. Tullio Vardanega [University of Padua]. As most of you know, Ada has been proven to be an excellent application for high integrity, high assurance, and real-time applications. Typically these applications utilize subsets of deterministic constructs to ensure full analyzability of the source code. Historically tasking has been excluded from these subsets due to its non-determinism and inefficiency. The Ravenscar Profile has upped the ante by allowing the inclusion of a restricted, but powerful subset of the Ada tasking model. Advances in the areas of schedulability analysis currently allow hard deadlines to be checked, even in the presence of a run-time system that enforces preemptive task scheduling based on multiple priorities. Applications built on this model can be demonstrated to be deterministic. More importantly, the restrictions allow for the creation of a highly efficient kernel allowing the desirable use of Ada tasking in high integrity systems with little or no performance penalty. The Ravenscar Model has opened the way for tasking constructs to be used in high integrity applications while retaining the core elements of the Ada language of predictability and reliability. This document is one of the most significant Ada documents and because of this, it is highly appropriate that it is reprinted in *Ada Letters*, making it available to our membership. We are extremely grateful to Dr. Burns, Mr. Dobbing, and Dr. Vardanega for allowing us to reprint the document in *Ada Letters*. The original document was printed as a University of York Department of Computer Science (YCS) publication, YCS 348(2003).

We had an excellent conference in San Diego last December. The proceedings were printed in last quarter's *Ada Letters*. Not identified in the proceedings were the winners of the SIGAda awards. The **Outstanding Ada Community Contribution Award for 2003** was awarded to **Dr. Michael González Harbour** of Spain. There are two recipients for the **ACM SIGAda Distinguished Service Award for 2003**, **Mr. Leslie Dupaix**, from the United States and **Dr. S. Ron Oliver**, also from the United States. The winner of the SIGAda 2003 Outstanding Student Paper Award was Mr. Eric Potratz for his paper titled: "A Comparison of Java to Ada in Implementing a Real-Time Embedded System". Eric was an undergraduate student at the University of Northern Iowa. Details on the award recipients are provided immediately after this letter.



## **ACM SIGAda** **The ACM Special Interest Group on Ada**

We had many excellent speakers and papers at SIGAda 2003. The conference was kicked off by an enticing presentation by Dr. Joyce Tokar discussing the Soul of a New Machine. She viewed some of the recent key innovations in history as Ada, Ada SPARK, Raven Spark, An Architecture Description Language (AADL), and A# (Ada for the .NET Framework). She focused on AADL as it allows one to model the entire system (both hardware and software) regardless of implementation. It allows one to answer questions such as "Can the system be built?", "Will it meet its deadlines?", "Is it consistent?", and "What is the impact of change?" Dr. Tokar talked about innovation and success, the key to success, and some lessons learned. Her keynote presentation provided wonderful way of putting the conference on an excellent foundation for a productive week.

We are grateful to ISO/IEC JTC1/SC22 WG9, the organization within ISO responsible for the evolution of the Ada language. Mr. Jim Moore, the Convenor of WG9, discussed the plans for amending the Ada Language for the year 2005. Dr. Tullio Vardanega, a member of the Safety and Security Rapporteur Group (HRG) provided an excellent overview of the Ravenscar Profile. Dr. Pascal Leroy, of IBM, and Chair of the WG9 Ada Rapporteur Group (ARG) gave a technical presentation of a number of key improvements that are currently under consideration for inclusion in Ada 2005. We thank WG9 for keeping SIGAda current on the evolution of the Ada language. It was a very important part of our conference.

A conference such as SIGAda 2003 does not just magically happen. It is the hard work of many individuals over an entire year. Dr. Robert Leif did an excellent job as the Conference Chair, taking on the responsibilities of the Local Arrangements Chair as well. These are two tough jobs that he handled extremely well. Lt Colonel Ricky "Ranger" Sward, also did an excellent job for his first time as the Program Chair. He put together a strong program that was well received. Mr. Greg Gicca did a phenomenal job as Exhibits Chair, enticing more exhibitors and sponsors than we have had in years. Dr. David "Cookie" Cook served as the Tutorials Chair and brought in an attractive set of Tutorialists that complemented our conference. We especially thank the tutorialists, Dr. Martin Carlisle, Dr. Roderick Chapman, Mr. Ed Colbert, Mr. Rick Conn, Mr. Brian Dobbing, Mr. Bruce Lewis, Dr. Jean-Pierre Rosen, and Dr. Joyce Tokar, who shared their valuable knowledge with the SIGAda community without compensation. Mr. Thomas Panfil kept our Registration activities humming until an unfortunate San Diego curb got the best of him and he ended up with a broken arm. We are indebted to Mrs. Anne Morrison who was able to keep registration flowing smoothly throughout the conference even after Tom returned to Maryland. Publicity is an extremely important part of any conference. Mr. Mark Glewwe, as the Publicity Chair, did a wonderful job with the Advance Program and the Final Program. Mr. Clyde Roby again did his wizardry as our Conference Webmaster. He also, as the Proceedings Chair, had the important job of producing the Conference Proceedings and the Conference CDROM. Despite the fact he obtained copyright releases from most of the presenters as they made their presentations, he still missed a few. ACM won't let us publish the CDROM until after all the releases are in. I greatly appreciate all the hard work he has put in to make this happen. We thank Dr. Alok Srivastava for his hard work on bringing Workshops and Birds of a Feather to the conference. These have an important potential for helping evolve Ada technologies. Dr. Michael Feldman is the Education Working Group Chair. In this capacity, he was involved with the academic program and was a key member of the team that selected and presented the Outstanding Student Paper Award. In putting together any conference, it is important to have a technically successful conference. More important in the eyes of ACM is to have a financially successful conference. We are indebted to Mr. Hal Hart, who as Conference Treasurer put together a budget that resulted in a financial success. And all of this activity took place under the auspices of Mr. David Harrison, the SIGAda Vice Chair for Meetings and Conferences. The SIGAda Community thanks all of you for putting on a technically successful conference as well as a financially successful conference.



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About once a year, ACM will contact you and ask you to renew your membership. Please do so right away. This will keep you from being dropped from the membership roster and missing an *Ada Letters*. Also, if you know of any folks in your organization, who might benefit from a SIGAda membership, please contact them and let them know about SIGAda. Their membership may be as valuable to them as your membership has been to you.

Earlier the SIGAda Annual awards for 2003 were mentioned. It is not too soon to start thinking about your nominations for the 2004 Outstanding Ada Community Contribution Award and the ACM SIGAda Distinguished Service Award. This is our way to honor those who have served a valuable role to the Ada and SIGAda communities. Your input is extremely important to making this program successful. Nominations can be made by sending a simple email to [SIGAda-AWARDS@ACM.ORG](mailto:SIGAda-AWARDS@ACM.ORG). Details on how to submit nominations can be found at the SIGAda Home Page at: <http://www.acm.org/sigada/exec/awards/awards.html>.

One of the most important artifacts of SIGAda is our *Ada Letters*. We are very thankful to have 2 dedicated folks put out this valuable product, Dr. Martin Carlisle (the Managing Editor) and Dr. Patrick Rogers (the Technical Editor). We use it to share valuable Ada information with the Ada Community. Have you been doing some important Ada-related work? If so, we are always looking for quality submissions. Please contact both Dr. Carlisle and Dr. Rogers by contacting them at [SIGAda-Editors@acm.org](mailto:SIGAda-Editors@acm.org) or individually at [carlisle@acm.org](mailto:carlisle@acm.org) or [progers@classwide.com](mailto:progers@classwide.com). They would love to hear from you! Incidentally, Patrick just recently received his Ph.D. from the University of York, Congratulations!!!

There are a number of important Ada conferences in the near future. These include:

- Ada-Europe 2004 - 14-18 June 2004 - 9th International Conference on Reliable Software Technologies - Palma de Mallorca, Spain => <http://dmi.uib.es/~AE2004/>
- SIGAda 2004 - 14-18 November 2004 - ACM SIGAda Annual International Conference on the Ada Programming Language - Atlanta, Georgia => <http://www.acm.org/sigada/conf/sigada2004/>

As noted, our SIGAda 2004 Conference will be in Atlanta, Georgia from 14-18 November 2004. The venue will be at the Atlanta DoubleTree Hotel, located in the heart of Buckhead, Atlanta's most vibrant and affluent district. Buckhead has many interesting restaurants and shops. The hotel is only 1 1/2 blocks from Lenox Mall / Phipps Plaza; considered by many to be the best shopping in the Southeast. We have a terrific technical program lined up. Already we have as keynote speakers: Ms. Pam M. Thompson [Lockheed Martin Aeronautics], Dr. Watts Humphrey [Software Engineering Institute], and Dr. Stephen Cross [Georgia Tech Research Institute]. Please see the SIGAda 2004 Home Page at <http://www.acm.org/sigada/conf/sigada2004/> for details. Very special thanks to Dr. John McCormick, the Conference Chair, Lt Colonel Ricky Sward, the Program Chair, Mr. Rick Conn, the Local Arrangements Chair, and the SIGAda 2004 Conference Committee for all their hard work. We are looking forward to a very special time! If you are interested in actively participating in this conference, please contact Dr. John McCormick at [mccormick@cs.uni.edu](mailto:mccormick@cs.uni.edu). We look forward to hearing from you!

Sincerely yours,



Currie Colket, Chair ACM SIGAda

