Message from the
Program Chair and Vice-General Chair

The Fourth Annual IEEE International Symposium on High Assurance Systems Engineering (HASE '99) is a forum for discussion of systems engineering issues specifically for high-assurance systems. Since high-assurance systems can cover anything from nuclear power plants to traffic light controls, HASE has always attracted a diverse and stimulating program, and we have found things to be no different this year.

The conference received 44 submissions this year. This was down from last year, but according to the program committee's evaluation, the overall quality of the submitted papers was much higher, and the committee had no problem selecting a strong program.

This year we streamlined the paper submission and review process. The organization of the program committee was simplified, and we introduced a web-based submission and review process using the START conference manager (http://www.cs.umd.edu/~rich/start.html) developed by Jeff Hollingsworth and Rich Gerber. This allowed the program committee members to see papers before they decided which ones they would like to review, and made the submission and processing of reviews much easier. As a result, we were able to guarantee that each paper received at least three reviews, and most received four. Papers and panel submissions were discussed at the program committee meeting.

We also introduced a new procedure for HASE in the Call for Papers: the use of Experience Reports. We created a new submission category, Experience Abstracts, in which authors could submit two-page descriptions of systems they have developed. This gave an opportunity for practitioners who do not have the same motivation to publish as researchers, but who are doing interesting work that is worthwhile, to present and discuss in the HASE community. The Experience Reports were then selected from these abstracts. One of the regular submitted papers was also selected as an Experience Report.

The rest of the program also presents a varied and lively mix of issues, research, and applications. Besides the Experience Reports, we have a session on case studies that analyze the results of applying the latest research to real systems. We also have sessions on many HASE-related research topics, including Evaluation and Testing, Fault Analysis, Reliable Communications, Frameworks, Systems and Tools, and Metrics and Modeling, as well as a special session on the use of UML in designing high assurance systems.

This year we offer two keynote speakers, one from government and one from industry. The government speaker, Dr. Marvin J. Langston, Deputy Assistant Secretary of Defense, Deputy Chief Information Officer/Year 2000, discusses the Department of Defense's preparation for addressing Y2K in its most critical systems, in a lecture entitled “Countdown to Y2K: View from the DoD DCIO.” This year's industry representative is Mr. Vance Hilderman, President of Teksci
Corporation. Mr. Hilderman leads a software company that will not take an assignment unless it has high assurability requirements. In a talk entitled, “Convergence on High Assurability, Will We Converge or Diverge?” Mr. Hilderman discusses the competing forces that make the future of high assurance systems questionable.

At the past two HASE symposiums, panel sessions have been lively and have gained overwhelming popularity, a direct result of the interdisciplinary panel and audience presenting more than one side of the story. The trend is expected to continue this year, with three provocative panel topics.

In one panel, organized by Victor Winter of Sandia National Laboratories, the question “Should software be used in high assurance systems?” is discussed. This panel includes designers of mission-critical systems who believe that software cannot be trusted, as well as those who believe that the added functionality gained is worth the risk, provided appropriate precautions are taken.

A second panel, chaired by Herb Hecht of Sohar, Inc., asks the question, “Where is the most critical challenge to integrating high assurance systems?” Many times, high assurance systems are pieced together by subsystems developed by independent contractors. Every contractor believes his or her subsystem is THE most important. On the other hand, such systems are likely not to work unless EVERY subsystem works, not only on its own, but when integrated with other subsystems. This panel explores both the normal integration difficulties and the often overlooked but often more damaging problems relating to documentation, testing, exception handling, and security.

The third panel, organized by Ann Tai of IA Tech, Inc. and chaired by Ray Paul of the Department of Defense, brings together developers to debate the question, “Can COTS [commercial-of-the-shelf] components be used in high assurance systems, and if so, what are the best ways of doing this?” In this panel we hear from people who are dealing with using COTS in different applications and walks of life, and we learn their opinions on what works and what doesn't.

In summary, we believe that we have an exciting and informative program this year, and we have a lot of people to thank for it. In particular, we would like to thank the program committee, not only for reviewing the papers and participating in the program committee meeting, but for publicizing the conference and recruiting papers themselves. We would also like to the authors, the panelists, and the invited speakers for contributing to this year’s excellent program. Finally, we would like to give a special thanks to Catlin Irani for setting up and managing the START conference software. Without all these people’s help, HASE ’99 would not have been possible.

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