

Reliability Society

NEWSLETTER

Vol. 55, No. 2, September 2009

CONTENTS

President's Message

President's Message

[From the Editor](#)

[Society News](#)

[Society Solicitations](#)

Feature Articles:

[Software Safety Guidance](#)

Chapter Activities:

[From the Chapters](#)

Technical Activities:

[Technical Activities](#)

Announcements:

[See Announcements Section](#)



Dear Reliability Society Members,

2009 has been an interesting year for the Reliability Society, as it has been for almost everyone. Alan Street, our elected President for 2009 has resigned, and I, as Junior Past President, have agreed to serve out the rest of his term for 2009 and was voted in by the ADCOM in August. Further, Bill Tonti (our 2008 President) agreed to take a staff position at IEEE which forcibly removed him from our ADCOM and his ability to remain as our Junior Past President for '09.

In 2009, we also found out that we are under the watchful eye, also known as being on the "watch list", of the IEEE Technical Activities Board Financial Committee (TAB FINCOM), resulting from economy hits causing impacts to our planned revenue.

Further, we are in the process of getting ready for our 5-year reviews that will occur in mid-2010. Every Society is required by IEEE TAB to undergo this every 5 years. One of those reviews deals with our publications business, and the other deals with our Society as a whole.

I wish to assure each of you that I will do all that I can to get our Society through these hard times. Your ADCOM and EXCOM has terrific talent, and we are taking the steps necessary to keep the Society in good health. In short, Dennis Hoffman (Senior Past President '09) and I are sharing the roles of all three presidential positions in order to get our Society through these times.

Hopefully, the economy will improve and things will return to a more normal situation by 2010, and our Society financial issues will subside as planned revenues resume. Please email me with any concerns or suggestions on these matters.

I wish you all a healthy and enjoyable Fall '09.

Best Regards,

Jeffrey Voas

j.voas@ieee.org

From the Editor

Welcome to the IEEE Reliability Society e-Newsletter. An issue will be published quarterly and published to the Reliability Society website.

We welcome your articles, comments or questions. All RS Newsletter inputs should be sent electronically to Lchase@ieee.org.

March	Inputs due February
June	Inputs due May
September	Inputs due August
December	Inputs due November

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[Top](#)

Society News

Congratulations to our newly elected RS Officers for 2010.

President: Jeff Voas
 VP Meetings: Alfred Stevens
 VP Membership: Dennis Hoffman
 VP Publications: Bob Loomis
 VP Tech Activities: Sam Keene

Voting Members will receive your IEEE Reliability Society ballot material for the 2010 Adcom election electronically from ieee-relvote@ieee.org. The voting period is expected to be 20 October – 1 December 2009. Please vote!

New Expert Now Course

The following Reliability Society sponsored IEEE Expert Now course was recently released, is available to IEEE Members via IEEE Xplore (see <http://ieeexplore.ieee.org/modules/modulebrowse.jsp>), and is included in the institutional subscription to the IEEE Expert Now collection of courses.

Concepts and Models for Repairable Systems Reliability
by Christian Hansen and Harold Ascher

Course description: Almost all systems of interest in reliability applications are designed to be repaired, rather than discarded, after their first failure. Nevertheless, most reliability texts overemphasize nonrepairable items (henceforth, "parts"); if repairable systems (henceforth, "systems") are addressed, they usually are assumed to be same-as-new after repair. Such renewal by repair is neither plausible, nor mathematically tractable, nor even desirable since reliability growth is sought. Moreover, even with the utmost care in distinguishing between parts and systems, failure data sets for parts and systems look similar, their mathematical models look similar and even fundamentally different analysis results often look similar. Most reliability texts are impeccably rigorous when addressing parts but, unfortunately, many become extremely sloppy when treating systems – which require much more rigor! All these interacting factors have caused widespread misconceptions about even basic systems' reliability concepts. For example, what could be simpler than the idea that a system's reliability is improving if it fails less often with increasing operating time? In general, there is no connection between this concept and decreasing "failure rate" since the blatant misnomer "failure rate" almost always is defined as a property of a part's distribution of time-to-failure. Moreover, even under the definition for parts, increasing "failure rate" does not imply a monotonically increasing average number of part failures per unit time. This course presents basic concepts and models for parts and systems and stresses their up to infinite differences, rather than their superficially striking but relatively unimportant similarities.

See **Call for Expert Now Tutorial Authors/Presenters** below in Solicitations.

[Top](#)

Security & Privacy Magazine Special Issue

In the forthcoming issue of Security & Privacy, you will see the attached call for papers for the special issue on reliability and security of hand-held devices. I already have one paper (on the security side). John Viega and I are contacting people in industry and academia directly to get them to write articles. Please do the same. We need some really good papers on reliability of these devices. I would also like to receive papers that bridge to two disciplines. Let's work together to make this special issue a success. I also have a special issue coming up on embedded systems (reliability, safety, security). Please send me ideas for what to include in that call for papers, especially in terms of reliability. Security & Privacy magazine: CFP for Reliability and Security of Hand-held Devices

Safety: Impressive DVD from the US Chemical Safety and Hazard Investigation Board

The Honorable William E. Wright, United States Chemical Safety and Hazard Investigation Board, was the 2009 RAMS (Reliability and Maintainability Symposium) Keynote Speaker and his presentation included the showing of portions of this DVD. The web site where you can request (free) that Safety DVD in on the US Chemical Safety and Hazard Investigation Board Website: <http://www.chemsafety.gov/index.cfm> . After the web site opens, on the left side in the listing is a title, Request DVD, click that and enter the requested mailing information. The DVD is entitled, Safety Videos 2005-2008, a two-DVD collection containing all CSB safety videos issued from December 2005 to October 2008, including the most recent video, "Half an Hour to Tragedy." It is all chemically oriented, but very impressive – explosions and resulting impacts. The Chemical Safety and Hazard Investigation Board produces these safety videos as part of their mission of preventing accidents.

[Top](#)

Society Solicitations:

IEEE Reliability Society Annual Technical Activities Report Call for Contributions

ATR contribution are solicited that share an insight or technology advancement improving reliability, security, trust, safety, or any of the supporting disciplines, e.g., EMC. Any definition of threats and improvement opportunities to our infrastructure or basic quality of life are especially welcomed this year, as those topics support our theme for the year. All contributed articles will be included on the Reliability Society web page (example of 2007 and 2008 ATR, please see ATR link on left side of <http://www.ieee.org/reliabilitysociety>).

All submissions will be published on the Reliability Society web page report. Selected articles will also be published in the IEEE Reliability Transactions. Suggested contributions will nominally run from 1 paragraph to several pages, but brevity is valued. Please submit your contributions to s.keene@ieee.org. This year's ATR contributions will be timely when received before December 1, 2009.

TIP Codes

UPDATE YOUR TIP CODES: All members are encouraged to update your Technical Interest Profile (TIP) codes. Updating these codes will help IEEE develop programs, products and services that better support members and the profession.

To update your TIP codes, go to the Shop IEEE login page
<https://sbwsweb.ieee.org/ecustomercme_enu/start.swe?SWECmd=Login&SWECM=S&SWEHo=sbwsweb.ieee.org> and enter your user name and password and click the "Login" button.

You will be directed to the Shop IEEE page. Once you are there:

1. Click the My Account tab.
2. Under the My Information Column in the far left, click the "Technical Interest Profile" link. Your Technical Interest Profile will appear in the center of the page.
3. Click the "New" button to the left of your profile to update your S/C TIP codes.

To learn more about TIP Codes, or to get a full list of TIP codes, visit:
<http://www.ieee.org/web/volunteers/tab/tab_tip_codes.html>.

Call for Expert Now Tutorial Authors/Presenters

The IEEE is cooperating with IEEE Educational Activities to develop and produce technical video tutorials from the reliability field.

We refer you to the direct link to the IEEE Expert Now "Call for Authors" web page, <http://www.ieee.org/web/education/Expert_Now_IEEE/smerecruit.html>

Those who are interested are invited to complete the presentation form and forward to Ms Marsha Abramo, m.t.abramo@ieee.org. We plan to produce one or more such tutorials each year supporting the IEEE EA education base for our membership.

[Top](#)

Chapter Activities:

The most recent chapter activity reports are linked below:

[Cleveland](#)

[Dallas](#)

[Denver](#)

[Singapore](#)

[Twin Cities](#)

[Top](#)

Technical Activities:

Annual Technical Report

ATR contribution are solicited that share an insight or technology advancement improving reliability, security, trust, safety, or any of the supporting disciplines, e.g., EMC. Any definition of threats and improvement opportunities to our infrastructure or basic quality of life are especially welcomed this year, as those topics support our theme for the year. All contributed articles will be included on the Reliability Society web page (example of 2007 and 2008 ATR, please see ATR link on left side of <http://www.ieee.org/reliabilitysociety>).

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Society Technical Activity Organization

"Technical operations" is now called "technical activities" to align with the naming used by the IEEE technical advisory board. "Technical activities" is obviously the technical arm of the IEEE Reliability Society. Its charge is to:

- Help incubate new conferences
- Foster ways to get more technical information to our members through:
 - Annual Technical Report that comes out each January
 - Enable a content rich web site that will provide IEEE RS organizational data, technical reports and data, and tools (These capabilities are under development)
 - Publicize state of the art work in the IEEE Transactions, Spectrum magazine, our web site, and discussion groups
 - Enhance the RS promotional flyer with technical activities content
 - Build templates, guides and resources to guide and mentor new members of the society and profession
 - Interface with other technical societies and collaborate on joint ventures to gain synergy
 - Deliver technical information through: classes, tutorials, DVD's, and online collaboration (meetings)

Technical Activities organization:

Sam Keene VP Technical Activities

Tech Ops Deputy	Dennis Hoffman
Tech Ops Japan	Shuichi Fukuda
Tech Ops Europe	Enrico Zio
Tech Ops Taiwan	Shiuhpyng Shieh
Tech Ops Communications	Lon Chase

Technical Pillar leads:

Jim McLinn	System of Systems Development and Performance
Robert Stoddard	Software Development and Performance
Lou Gullo	System/Subsystem Development and Performance
Aaron Dermarderosian	System Foundation Development and Performance

[Top](#)

Announcements:

[Security & Privacy \(S&P\) Magazine](#)

[RAMS 2010](#)

[Reliability and Security of Hand-held Devices - Call for Papers](#)

[Hawaii International Conference on Systems Sciences \(HICSS\) - Call for Papers](#)

[Frontiers of Prognostics & Health Management Conference 2010 \(PHM 2010 Macau\)](#)

[2009 PSES Symposium on Product Compliance Engineering, 26/28-Oct-2009 Toronto Canada](#)

[Top](#)

The Evolution of Software Safety Guidance
Nancy Callaghan
Jeffrey Mead

Software is increasingly becoming a part of our every day lives from automatic tellers and fly by wire aircraft to the systems in the vehicles we drive. Cars can brake on their own to prevent rear end collisions. Military combat control systems can launch weapons without human interaction. What do these have in common? They are software controlled machines. And with every passing day these machines control an ever increasing amount of our lives.

Machines and their software today are often so complicated that inherent problems take a very specific set of circumstances to produce a newsworthy fault and that set of circumstances may not occur for a long while. We have all heard about the Mars Climate Orbiter that crashed because of a units incompatibility problem (metric vice English), the Ariane 5 (European Expendable Launch System) that failed due to a data conversion error from a 64-bit floating point number to a 16-bit signed integer, and the Therac-25 radiation therapy treatments that killed at least five people due to race conditions and arithmetic overflow. The reasons for these accidents provided here are grossly over simplified but they are provided to illustrate that software definitely affects safety and can cause the loss of lives and money.

Ensuring the safety of machines—software controlled or not—is an established industry; it is and has been for a long time. From Underwriters Laboratory and the National Safety Board to our military industrial complex, the business of making machines safe is an ongoing concern. The effort is large enough as to be unwieldy to talk about except in generalities. To get specific we need to scope our discussion to manageable proportions. Therefore we need to pick an industry and a focus.

There is a lot of software out there controlling energy and controlling energy release is where the problems come in. As the Navy has been in a leader in establishing safety as a priority for systems they develop and as the authors have done the bulk of their software safety engineering within the Navy development environment, our look at software safety will be sharper if we look through the eyes and efforts of the US Navy.

Software safety is a moving target. Moore's law says that hardware processors speed doubles every two years. Memory size increases similarly. Software takes advantage of both, evolving in size and complexity with hardware improvements. Issues of speed and memory usage were a critical focus of development when processors were older. It was common to program at the bit and byte level to save memory. It was common to deal with programming at the register level. Writing software at these levels introduces a level of complexity that humans are not always good at managing. Hence, error prone code leads to safety issues.

The Navy used a series of computing platforms named AN/UYK, numbered in a series of versions. These computers were and still are used in submarines, surface ships and

ground based command and control systems. The AN/UYK-44 is the standard 16-bit computer. The AN/UYK-7 is the standard 32-bit platform. They use integrated circuits, 18-bit addressing and support multiple CPUs and I/O controllers (3 CPUs and 2 I/O controllers were a common configuration). In the mid-1980s, the UYK-7 was replaced by the AN/UYK-43. Retired systems are being cannibalized for repair parts to support systems still in use by U.S. and non-U.S. forces.

The language executed on these computing platforms is CMS-2 and ULTRA, general purpose programming languages used almost exclusively for real-time and embedded applications for the Navy. Because these Navy applications have the potential of harming personnel and causing the loss of expensive equipment, the Navy followed rigorous requirements for safety analyses. Guidance for development included the following documents:

- MIL-STD 882 D – Standard Practice for System Safety
- US Army AMCOM Reg385-17 Software System Safety Policy
- NAVSEA Instruction 8020.6D – Navy Weapon System Safety Program
- STANAG 4404 – Safety Design Requirements and Guidelines for Munitions Related Safety Critical Computing Systems
- Joint Software System Safety Committee (JSSSC) Software Safety Handbook
- US Army and Navy Software System Safety Technical Review Panel (SSSTRP)

In general, these documents provide sound guidance for software safety analyses. Although these guidelines have been updated over the years, their shortcoming is that some of the guidance is still oriented towards CMS-2, a procedural language. In many cases, guidance in these documents is not applicable to modern object-oriented languages, such as C++ and Java. Furthermore, some of the guidance is confusing when applied to modern languages.

Software, operating systems and the memory storage systems have evolved immensely since the 1970's when software safety began. These software languages were state of the art at the time. But, these languages have capabilities that are inherently unsafe. The programmer is expected to manage memory allocation and deallocation, which is error prone, leads to memory leaks and unexpected behavior. Memory leaks can be difficult to find. Furthermore, when changes are needed to add new functionality or to fix software bugs and an entire recompilation of the system was undesirable, then "patches" were applied to the executable image. With language constructs capable of "jumping" anywhere in the compiled executable, then unsafe conditions could occur.

Some examples of outdated safety guidance include references to the use of input and output registers, inadvertent jumps, indirect addressing and halt instructions. There are also references to the safe usage of bit patterns for variables controlling safety critical functions. The guidance specifies the use of 4-bit uniqueness. With the amount of memory available today and the speed of the processors, it is usually not necessary to deal with variables at the bit level. In fact, modern languages do not make it easy to deal with memory at the bit level because it is error prone and unnecessary.

An example of where the guidance could be updated for modern languages is the definition and use of “dead code” and unused code. These terms should be updated for modern languages. Most of the safety guidance is in agreement that debug code should not be left in the delivered system. Debug code provides a way for the developers to gain insight when troubleshooting problems, usually in the form of a print statement to the screen, to a file or to a database. Debug code should not be included in the final delivery of a system. There is also diagnostic code that can help troubleshoot problems with the delivered system and this should certainly stay. Unused executable code is code that cannot be reached, or code whose execution does not serve a purpose. However, exception handling is an integral part of modern languages. Even though a particular exception may not be raised, the source code that handles that exception is not considered unused executable code, because it is reachable and provides functionality to the system. In fact, it would be unsafe if an exception is not handled should the exception be thrown.

Most of the documents listed above are quite helpful but need to be updated to reflect some of the potentially unsafe features in C++ and Java, widely used languages in Navy software systems. For example, Java has a feature called “garbage collection”. (Third party vendors can provide garbage collection for C++.) The compiler detects when an object is no longer being used and deletes it. Garbage collection operates in the background and is controlled by the Java Virtual Machine. This alleviates the need for developers to manage memory, which as said before, is error prone. The problem with garbage collection is that for real time systems, complete control is needed to ensure safety critical functions. Garbage collection activity suspends all application threads while it releases memory, leading to potentially non-deterministic processing states. One certainly would not want garbage collection to happen with a time sensitive function like launching a weapon. This problem can be nearly overcome with “object pooling”, where as many objects as possible are instantiated prior to runtime. This practice minimizes garbage collection issues.

In summary, computing hardware has improved at a rapid rate and software languages have evolved to take advantage of improved processor speed and larger memory resources. . As languages such as C++ and Java have evolved, much safer language constructs have been added that make it more difficult for developers to create insidious problems. However, with this evolution, new issues are introduced. The authors are pointing out that there is a lot of sound safety software guidance, but in some cases it needs to be updated to reflect modern languages and in other cases, the guidance is no longer applicable.

Cleveland Chapter



The Cleveland Chapter had four meetings in this period.

PAST MEETINGS

The January meeting was on the ♦History of Beach Parks.♦ John Frato, L. E. A. R. Promotions, explained the origin of the 3 beach parks in Ohio. Euclid Beach Park was designed and built by local engineers with the backing of City Officials. It was an excellent amusement park for many years. Then the builders needed the land for developments and the park was disassembled. Gauge Lake has had its problems but is still in good operating condition. It supplies many summer jobs to our young people. Cedar Point is well engineered and functioning at a great level. It is a good place to go for recreation and fun.♦ It was a good meeting. The food was great.

The February meeting was on NASA Questions. Ramon Lugo, Deputy Director, answered many interesting questions. Here is an example: What do you see as the biggest challenge facing our space program? We♦re going to have this gap between when the space shuttle stops flying and the CEV comes on board, and right now it♦s getting to be about five years. I would like to see that gap get smaller. Just making sure we♦re able to continue to access space with American astronautics as we see fit will be a challenge.♦ This was a very informative meeting, good fellowship, and great food made it a fun event. Thanks to Jimmy for arranging this great meeting!

The April meeting was on Astronomy at Cleveland Museum of Natural History. Clyde Simpson talked about the museum history, the star observatory, the 18♦ telescope, the classes held to teach astronomy, and the exposition they managed to find the models in Ethiopia. There were a lot of question on the stars. What is a black hole? Is the universe continuing to expand? Is there any limit to space? How does one go about enrolling in a class? Has a report been written on the findings of the exposition? Clyde did a good job of answering all of the questions. It was a good meeting. The food was great.

The Spring Election of Officers was on May 27. It was held at the Picnic Grounds. Ernie Bertone and Jimmy Simek took care of the logistics. The steaks and fish were excellent again this year. The officers did not change. Please try to bring new members into the meetings so we can keep the group active. It was a great roast with a lot of news; fun, and good cooking for a delicious meal. See you in the fall. Our next meeting will be in September.

CHAPTER ACTIVITIES



We are supporting meetings and conferences on the Management Committee, with papers, tutorials, and session Chairs and suggested topics. The Chapter Staff are all working to build our membership. Our golf outing, social events, and technical meetings are working to keep the members active. Each member is trying to bring an associate to activities when they can.

♦Two conferences will be held at the Ohio Aerospace Institute in 2009. There will be presentations, exhibits, training, and splinter meetings in the three and one half day activities. Award for the best presentation is given.♦ These activities provide the Safety and Mission Assurance (SMA) community and Project personnel with a unique opportunity for interchange and interaction on innovative assurance technologies and tools. It

promotes dialog and co-operation with the Project Managers, Contractors, and Safety and Mission Assurance Managers. .

Overall, here in Cleveland we are having fun, staying active, and serving the needs of our members.

Regards,

Vince Lalli,
Chair

Denver Chapter

Risk Control Implementation During Product Architecture - Chet Haibel, Senior Principal Reliability Engineer, Seattle, WA

Focus on early on in the New Product Development is when the opportunity is best to insert Risk Control Measures to counter Hazardous Situations that could lead. For medical devices this could be harm to the Patient, User, Bystander, Property, or the Environment. Fault Tree Synthesis is shown to be a logical and visual way to stimulate team creativity to identify methods of blocking the pathways that allow Hazardous Situations

Alternate Energy Workshop

In Denver we have had an alternate energy workshop in conjunction with the Denver section. Also a tour of the Excel windmill farm.

The RS chapter held a work shop on energy saving tips we can use in our home.

Presentation and discussion on energy saving tips

By Gary Myers, Energy Use Specialist, Poudre Valley Rural Electric Association

Gary gave a 40 minute presentation on things we can each consider for better energy conservation things to do in our homes. He also discussed the type of testing he performs to find where heat escapes from our houses. I was surprised to find out some of the places that leak energy in our homes. Gary is building his own geothermal pump to warm and cool his home. He also told us where you can find out more about state and federal tax credits this year.

Sam :--)

Samuel Keene, PhD, FIEEE

Six Sigma MBB

VP, Technical Activities IEEE Reliability Society

BOD Technology Management Council

Report by IEEE Singapore REL/CPMT/ED Chapter for July-Sep 2009

Together with Institute of Microelectronics, the Chapter jointly organized a talk on 20 July 2009 on “Recent Advances in Anisotropic Conductive Adhesives (ACAs) Interconnection Technology – Low Temperature and Fast Assembly Methods” by Prof Kyung-Wook Paik, Korea Advanced Institute of Science and Technology (KAIST). He response was overwhelmed with about 80 participants attended this talk.

Jointly organized with the Microelectronic Center, School of Electrical and Electronic Engineering, Nanyang Technological University, the Chapter organized a Workshop and IEEE EDS Mini-colloquium on NANometer CMOS Technology (called 20th WIMNACT) on 11 August 2009. Three EDS Distinguished Lecturers (Prof. Juzer Vasi, IIT Bombay, India, Prof. Ramgopal Rao, IIT Bombay, India and Dr. Samar Saha (IEEE EDS VP Publications), Silterra USA Inc., USA) presented three talks. The workshop was officially opened by Prof. Kam Chan Hin, Chair of the School of Electrical and Electronic Engineer, NTU. These were Modeling and Simulation of Flash Memory Devices by Prof. Vasi, Polymer Based Sensor Systems for Healthcare & Homeland Security by Prof. Rao and Device Considerations for Ultra-Low Voltage Analog Integrated Circuits by Dr. Saha. About 30 participants attended the talk.



20th WIMNACT. First row from left – Prof. Zhou Xing (IEEE Singapore Rel/CPMT/ED Chapter ExCo member), Prof. Kin-Leong Pey (Chair, IEEE Singapore Rel/CPMT/ED Chapter), Prof. Kam Chan Hin (Chair, School of Electrical and Electronic Engineering, NTU), Dr. Samar Saha, Prof. Juzer Vasi and Prof. Ramgopal Rao.

The Chapter co-hosted the 16th IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA 2009). It was held from 6-10th July 2009 in Suzhou, China. Eight tutorials were conducted on 6 and 7 July 2009, with two parallel sessions. 15 invited papers were presented over the 3-day symposium from 8 to 10 July 2009. This is the first time that IPFA is being held in China and despite the global financial crisis, almost 200 abstracts were received. For the 3-day symposium, there were two parallel sessions with 81 oral presentations. A record 94 papers were accepted for the poster presentations. There were more than 200 participants for the tutorials and symposium and 27 exhibitors participated. The “Art of Failure

Analysis” Photo Contest attracted some high quality photographs. The first-prize photo was featured on the cover page of the IEEE Spectrum online and the top 10 entrants were included as a slideshow in the IEEE Spectrum Magazine website. More information can be found at

http://www.sipac.gov.cn/ywdd/200907/t20090709_49025.htm and
http://www.sipac.gov.cn/sipnews/gd/200907/t20090709_49000.htm.



The opening ceremony of IPFA2009 in Suzhou, China.

Submitted by
Kin-Leong PEY,
Chair Singapore REL/CPMT/ED Chapter

Minnesota Reliability Consortium  composed of the Twin Cities IEEE Reliability Society, IEST and the Reliability Division of ASQ

Twin Cities RS Chapter Report for Summer, 2009

During the summer 2009 year the Twin Cities chapter of IEE RS held one planning meeting and one regular meeting in June. A fall kick-off meeting is planned for September. We continue to hold joint meetings with other societies.

Gary Box, a motor consultant, spoke of improving the efficiency of motors and motor applications at the June 2009 meeting which was joint with PELS. During this meeting, elections were also held for new officers for the coming year. Larry Akre was elected Chair, Frank Costabilo, Vice Chair and Jim McLinn Treasurer of the Twin Cities RS chapter. They continued in office for another year. Three people were also selected for a steering committee Mike Sherman, Joseph Ward and Aron Rolnitzky. The June 16 th meeting was held at Unisys with 25 people in attendance.

We continue to offer all of our meetings free in 2009/10 year. The format of the meetings was also changed in order to facilitate increased attendance.

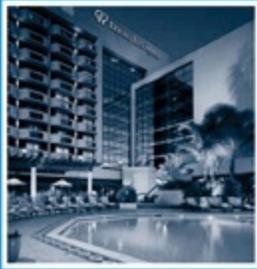
The September 22 meeting will be by speaker Chris Simon who will talk about and demonstrate the Ford Focus that he converted to an all electric car, running on one electric motor operating at 136 V DC. This meeting is planned joint with PELS and CS because of its wide applicability.

The October 20 meeting will be on Generating agile software for enhanced Reliability.

Contact James McLinn at 763 498-8814 or JMReL2@Aol.com for more details of Twin Cities RS Chapter activities.

Can you find the way to San Jose?

"The 56th Annual Reliability and Maintainability Symposium."



www.rams.org

Join us January 25-28, 2010 at the fabulous Doubletree San Jose Airport Hotel for the best value in Reliability, Availability, and Maintainability knowledge sharing.

Our theme this year—"Transcending Traditional Reliability Approaches—*from Theory to Practice*" provides for a focused program that will enable you and your organization to optimize the mitigation of risk and the performance of your systems.



Save the Date: January 25-28, 2010.



SAE International



The World's Team In Aerospace Leadership



Celebrating 125 years of engineering the future



Institute of Industrial Engineers
A Better Way



should be 6,000 words, maximum, with a maximum of 15 references. Articles should be understandable to a broad audience of people interested in security and privacy. The writing should be down to earth, practical, and original. Authors should not assume that the audience will have specialized experience in a particular subfield. All accepted articles will be edited according to the IEEE Computer Society style guide.

For information on submitting an article, please visit our [Author Resources](#) page.

Call for Papers

43rd Hawaii International Conference on Systems Sciences (HICSS)
Kauai, Hawaii January 5-8, 2010

Mini-Track on Trust and Dependability

IT functions as the information and decision and control system for the operations of our public and private institutions in agriculture, food, water, power, public health, emergency services, government, defense industrial base, transportation, banking and finance, and postal and shipping. The resulting cyberspace-based infrastructure is a dynamic and adaptive system employing hundreds of thousands of interconnected computers, servers, routers, switches, and fiber optic cables that enable our critical infrastructures to support societal functions. Society has, therefore, come to depend upon and trust these systems.

Papers presenting best practices and research are invited in the following areas:

- ◆ computer security technology for networked information systems;
- ◆ the impact of computers and networks on infrastructure security in
 - finance
 - transportation
 - utilities
 - health care
 - telecommunications
 - other critical services
- ◆ interactions among such technologies
- ◆ issues surrounding privacy, ethics, legislation, law enforcement, and national security
- ◆ closely related technical and social considerations

Submission Instructions

Please visit the HICSS website http://www.hicss.hawaii.edu/hicss_43/ for submission instructions and deadlines or contact the workshop chairs for more information.

Workshop Chairs:

Phil Laplante, Penn State, plaplante@psu.edu

Bret Michael, Naval Postgraduate School, bmichael@nps.edu

Jeff Voas, SAIC, jeffrey.m.voas@saic.com