May 2014 Newsletter
Joint-Section Chapter - Boston - New Hampshire - Providence
March 2014 – May 2014
http://www.ieee.org/bostonrel

Greetings,

We have continued to have well attended monthly meetings, each of which consists of networking and then a presentation by a guest speaker. In February, we had our own Aaron DerMarderosian, Jr. of Raytheon, and past Chapter Chair, who presently serves as our IEEE Reliability Chapter Secretary, presenting "Counterfeit Analysis & Prevention - Detection & QC Non-Conformance Issues; Hardware & Data Destruction Assured Domestic Electronics Recycling." In March, we had a joint presentation with the ESDA (Electrostatic Discharge Association) about "Next Generation ESD Scanning Techniques for Protection Circuit Analysis and Debug." This presentation addressed the particularly insidious "soft" ESD failures, which may pass testing and show up as failures later, in contrast to hard ESD failures, which can be identified during testing. This presentation included interesting videos of a unique testing technique to identify "weak" locations in a circuit that may be prone to ESD failures. In April we had a presentation by Bert Farabaugh, the Worldwide Field Applications Engineering Manager for RTI (Real-Time Innovations), which is the world's largest embedded middleware provider.   He presented, "Increasing Data Availability and Reliability using Data Distribution Service for Real-Time Systems (DDS)." On May 14, we will have Leslie Gabriele return, for the first time in several years, to speak about "Personal Power and the Art of Perception." On June 11, Dr. David I. Heimann will return to provide us with an update on "A Guide to the Revised IEEE 730 Software Quality Assurance Standard." As well as being the first time in three years having had a presentation in January, this will also be the first time in three years, or more, since we have had a June presentation.

We plan to take a break this summer, and resume with our monthly meetings in September. If you are interested in presenting almost any technical topic, related to hardware or software, if it is (or can be) related to reliability, please contact us. If you are local to the Boston area, or if you are in the Boston area the second Wednesday of the month, please attend our meeting, enjoy the camaraderie, and introduce yourself to me. I hope to see you soon.

Regards,
Dan Weidman, Ph.D.

Chair, IEEE Boston Reliability Chapter, joint with Providence, RI and New Hampshire
IEEE Senior Member

Contents of this issue

Recent Activities:

Wed, March 12, 2014   A joint presentation with the ESDA (Electrostatic Discharge Association) about "Next Generation ESD Scanning Techniques for Protection Circuit Analysis and Debug." This presentation will address the particularly insidious "soft" ESD failures, which may pass testing and show up as failures later, in contrast to hard ESD failures, which can be identified during testing.

Tues, April 8, 2014   Bert Farabaugh, RTI Middleware," Increasing Data Availability and Reliability using Data Distribution Service for Real-Time Systems (DDS)," at MIT Lincoln Laboratory, Lexington, MA

Wed, May 14, 2014   Leslie Gabriele, Gabriele & Company, "Personal Power and the Art of Perception,' at MIT Lincoln Laboratory, Lexington, MA.

Upcoming Events: Visit http://www.ieee.org/BostonRel to register

Wed, May 28, 2014   IEEE Boston section meeting for IEEE member and senior members about membership elevation clinic

Wed, June 11, 2014   Dr. David I. Heimann, "A Guide to the Revised IEEE 730 Software Quality Assurance Standard," at MIT Lincoln Laboratory, Lexington, MA.

Announcements: Details on other chapter and community related updates.

Recent Chapter Activities

"Advanced System-level ESD Scanning"

Our chapter's March meeting was "Advanced System-Level ESD Scanning," presented by Jeff Dunnihoo of Pragma Design, on Wednesday, March 12, 2014 at MIT Lincoln Laboratory in Lexington, Massachusetts. Jeff described a technique by which an electronics board can be run and specific locations that might be particularly vulnerable to ESD (electrostatic discharge) events can be identified.

Attendees at IEEE Boston Reliability Chapter's March 2014 meeting.

Jeff started his presentation by pointing out that ESD events have been studied since 1752, when Benjamin Franklin performed his famous lightning experiments. He also pointed out that some interfaces have such a small "budget" for filtering (such as USB 3.0 with only 3pF capacitance) that series inductance for filtering cannot be tolerated. He showed an example of EMI (electromagnetic interference) on a USB port that, ironically, was due to an ESD clamp, which shunted current to ground affected the Ethernet. Jeff showed videos of a circuit that was scanned with a nearby probe that was a current pick-up loop, with its axis parallel to the board. Scanning was repeated with the current pick-up loop axis parallel to the board but perpendicular to the original orientation. During scanning, a board is typically not running, but may have its rails biased. A scan takes about 2 hours, but is all automated. Scanning resolution is about 10 mm or 5 mm. The result is a visual map of areas that may be of particular concern. The slides from Jeff's presentation are posted on our web site.

http://ewh.ieee.org/r1/boston/rl/presentations.html

"Availability and Reliability using DDS for Real-time."

At our April meeting, which was on Tuesday, April 8, 2014 at MIT Lincoln Laboratory in Lexington, MA, Bert Farabaugh of Real-Time Innovation (RTI) visited us in the Boston area and presented "Increasing Data Availability and Reliability using Data Distribution Service for Real-Time Systems (DDS)." Bert began his presentation with some background about database structure. He described point-to-point protocol, such as TCP, vs. centralized protocol, which is undesirable from a reliability perspective, because there is a single failure point. Bert reminded us of the infamous USS Cole incident, and said that all functions of the ship were disabled with that relatively localized blast, and that the ship had to be towed back to the US. Bert mentioned that RTI's software is presently used on all US Navy ships. He explained that DDS "federates" functionality, thereby providing some advantages of both the point-to-

point protocol and the centralized protocol. He said that there are about ten providers of DDS in the world and that RTI is the largest provider. He mentioned that the structure of DDS lends itself to the Internet Of Things, which we have recently heard about and may become big in the future as sensors become less expensive and more ubiquitous. He said that DDS is used for tracking trains and for tracking patients in a hospital. Bert presented real-time software demonstrations of the key concepts.

Bert Farabaugh of RTI Presenting at IEEE Reliability Chapter meeting, April 2014.

Audience members listen to the monthly IEEE Reliability Chapter presentation, April 2014.

This was a very informative presentation that drew a large audience. There was much interest, as expressed by the questions and discussion after the presentation. The slides of his presentation will be available on our chapter web site.

Upcoming Events

6:00 PM, Wednesday, June 11, 2014

"A Guide to the Revised IEEE 730 Software Quality Assurance Standard"
David I. Heimann, Ph.D.

The IEEE has updated and added significant content to its IEEE 730 standard on Software Quality Assurance (SQA). The new version, which updates the previous version of 2002, describes three process areas and sixteen SQA tasks within these areas providing detailed elaborations for these areas and tasks.

The focus of this meeting is to provide a brief overview of those areas and tasks, discuss the difference between SQA and testing, covering SQA in an Agile software development lifecycle, and cover the annexes in IEEE 730 that provide industry-specific information as well as the relationships with software process approaches such as CMMI, SPICE, CSQE, PMBOK, and VSEs.
 Meeting registration: on-line at chapter website, http://ewh.ieee.org/r1/boston/rl/events.html

Meeting Location:
MIT Lincoln Laboratory
Building: Main Cafeteria
244 Wood Street
Lexington, Massachusetts
Date: June 11-2014 Time: 05:30PM to 08:00PM

Announcements

Reliability Chapter's Facebook Presence

Our chapter recently established presence on Facebook, so check it out. Visit the page by searching Facebook for "Boston Reliability". Please click "Like" to friend us. Meeting announcements are posted on the wall. Your feedback is most welcome.

Society Participation

For updates on upcoming events: http://ewh.ieee.org/r1/boston/rl/events.html.

We are interested in having you help out as a volunteer contributing as much or as little as you would like. We have a good team of volunteers that help us keep things going, so if you would like to join us, there is probably ample opportunity to choose how you would like to contribute. Email or talk to any of us at the next monthly presentation, or attend one of our Advisory Committee meetings.

The IEEE Reliability Society Joint Section Chapter
Boston - New Hampshire - Providence
Newsletters are available at the following link:

Boston - New Hampshire - Providence Joint-Section Chapter Newsletter

or copy and paste the URL below into your browser.

http://ewh.ieee.org/r1/boston/rl/newsletters.html