



**March 2013**

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**Dinner/Lecture 20 March 2013 (6:00 – 8:00 pm)**

## Modern Requirements Verification



*William Fournier,  
CSEP, PMP*

**Presentation:** Testing is usually the preferred verification method but it is expensive. Real-world case studies, practical advice, and emerging trends of requirements verification to show the relationship between financial constraints and confidence needs applied to a program will be discussed. Requirements testing can be viewed as "confidence per dollars"; that is, for every dollar spent, how much confidence is gained that the system is performing as required? It's an important question, the goal being to maximize the amount of confidence in a system while staying within financial constraints. How verification relates to test

event planning will also be discussed. Bill will also present why "tight traceability", in which the sum of the requirements equals the whole system, is a critical concept in large-scale system development where requirements number in the thousands.

**Speaker:** Mr. Bill Fournier has over thirty years DoD acquisition experience principally with Systems Engineering in the EMD phase and beyond. His experience includes supporting MRAP as a ORSA in Kuwait. For eight years, he was the Requirements Verification lead for Ground-based Midcourse Defense (GMD) where I integrated in a synergistic fashion requirements verification, M&S, VV&A, and SW IV&V processes. He teaches part time for SAIC, Honourcode/ATI and served as a Professor of Engineering Management DAU/DSMC for ten years. He has a self-published book entitled New Directions in Technical Reviews and has a US Patent on a Detector / Cooler Manufacturing Training Aide

**Location:** [Applied Physics Laboratory, Johns Hopkins University](#); 11100 Johns Hopkins Rd Laurel MD 20723 (Main Entrance – Lobby 1)

**Dinner:** Corned Beef and Cabbage, Parsley potatoes, Green beans, served with garden salad, dressing, rolls and butter, dessert, including a small Fruit Plate, coffee, iced tea

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This is the monthly newsletter for INCOSE Chesapeake, a local chapter of INCOSE International. We are a not-for-profit organization dedicated to providing a forum for professionals practicing the art and science of Systems Engineering in the Northern & Central Maryland & Southern Pennsylvania area.



**Mark your Calendars with these upcoming events:**

March 20, 2013: (6:00 - 8:00)  
[Monthly Dinner/Lecture: Modern Requirements Verification, How much can you afford?](#)

**Reservations:** Guests: \$25; INCOSE members: \$20 if payment is received by March 15th, 2013, \$25 afterwards. Purchase a ticket to this event by Credit card via PayPal, go to our [Registration Page](#)

**Presentation ONLY: FREE at 7pm in Parsons Auditorium**

**Live Entertainment:** Provided by the APL Jazz group for those arriving early for the lecture in the Parsons Auditorium

**Corporate Sponsor:** We wish to thank the Applied Physics Laboratory for supporting the systems engineering profession through use of their facilities

[>>Download the Meeting Flyer Here<<](#)

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## Presidents POV

Why it's hard to define systems engineering I don't know how many of you have been following the latest INCOSE Discussion Forum on why it's so hard to define systems engineering. Apart from the technical debate (interesting on a number of levels), I was struck by how many references there were to human factors and dynamics. When I first joined INCOSE in 1996, very little attention was paid to human systems as an important aspect of successfully engineering systems. As an Experimental Psychologist, more comfortable with algorithms than Freud, I was keenly interested about the possibilities for integrating human systems with the traditional engineering domains with their connections to hardware and software systems.

Coincidentally, this interest was reinforced by the publication of a book in 1996 entitled "The Logic of Failure" authored by Dietrich Dörner who was the recipient of the Leibniz Award, Germany's highest science prize. In his book Dörner considers why – given all our intelligence, experience, and information – we make mistakes, sometimes with catastrophic consequences. The answer can be found in our patterns of thought – such as taking one thing at a time, cause and effect, and linear thinking – that while appropriate to an older, simpler world, proves problematic for the complex world we live in now. Today we know everything is interrelated. We can't do just one thing at a time because everything has multiple outcomes.

We frequently act before we understand all the interlocking elements of complex systems. An example can be found in the planners of Third World health programs who do not realize that increased life expectancy requires increased food supply and thereby inadvertently end up contributing to starvation. There are many others – all addressing the need for rigorous systems thinking and applying the first principles of systems engineering. I find it heartening that our professional society is increasingly weaving human factor implications into the discussion on more effective system engineering.

There are now several working groups that directly or indirectly focus on human systems integration. We are forging alliances with other related professional



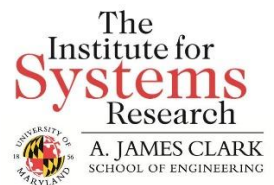
Philadelphia, PA  
June 24-27, 2013

[INCOSE International Symposium](#)

The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our 2013 Programs Director, [Dr. Alex Pavlak](#), if you would like the opportunity to speak or can recommend someone.

The Chesapeake Chapter of INCOSE is proud to recognize the following organizations for sponsoring our endeavors to expanding the understanding and appreciation of Systems Engineering in the local area:

Booz | Allen | Hamilton



societies such as PMI. There are technical initiatives that recognize the political aspects that must be factored into decisions on moving forward in implementing engineering decisions. All of this is happening not just at the national and international levels, but also at the Chapter levels. This includes our own Chapter where we enjoy a diverse set of monthly presentations, co-sponsoring workshops with organizations such as PMI, and several initiatives such as the alternative energy project.

We need to keep the momentum going on exploring opportunities that address the integration and interrelatedness of human factors into the mainstream of our systems engineering thinking. No matter how elegant our design might be or how well we match the highest standards of systems engineering, there will always be a human (or humans) involved in implementation. From my point of view, they are the enablers of any systems engineering effort.

*Bill Ewald CC President*

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## **Don't Miss The Upcoming Event In April** [Radical leadership: Practices for Building Innovative and Adaptive Environments](#)



*Dr. Suzette Johnson,  
Northrup Grumman*

**Presentation:** Improving innovation and increasing productivity are critical for survival in today's fast-paced working environments. To remain competitive our engineering teams must deliver a continuous flow of value desired by our customers. The challenge we often face is the ability to modify culture and change behavior to exploit the practices that develop an innovative and adaptive organization focused on meeting mission success. Traditional management and development practices focused on repeatability, efficiency and scale of producing goods; the focus today has shifted to increasing productivity and frequent delivery of

value through self-organizing, self-managing teams, increased creativity, and collaborative problem solving for increased synergy and collaboration. This presentation identifies principles and practices that have been successful in industry and build the foundation for innovation and adaptability where people are energized and engaged to contribute their best every day.

**Bio:** Dr. Suzette Johnson is a systems engineer, project manager and Certified Scrum Coach for Northrup Grumman. She has an interest and passion for promoting and implementing Agile engineering in large-scale software systems environments. Her initial experience with Agile-related practices started fifteen years ago with lean and rapid development for a commercial company. For over 7 years Dr. Johnson has actively engaged in leading, coaching, training, and advising programs, customers, and organizations in their transition to or maturity of their Agile practices. Dr. Johnson has over fifteen years experience in software/IT industry and has given over 60 presentations and workshops on Agile



An advertisement for UMBC's Center for Systems Engineering Training. It features a photograph of a modern building with a glass facade. The text includes "UMBC Training Centers", "CENTER FOR SYSTEMS ENGINEERING TRAINING", "Certified Systems Engineering Professional (CSEP) Preparation", "offered live and online", and a prominent red button that says "REGISTER TODAY!".

This Newsletter is to serve our members and is open to all for contributions. Do you have an interesting idea for an article? A review of a new book related to engineering? [Let us know](#). We'd love to hear about. It may wind up in a future issue of our Newsletter.

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Engineering. She received a Doctorate of Management at the University of Maryland with a dissertation focused on leadership and agile practices.

[>>Check out the Event Flyer Here<<](#)

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## 2012 Systems Engineer of the Year



*Dr. Alex Pavlak*

Dr. Alex Pavlak was recognized as the Chesapeake Chapter Systems Engineer of the Year for 2012. Dr. Pavlak is the project lead for a systems engineering initiative focused on clean energy systems and simplifying the global transition to a post fossil fuel economy. He has communicated and presented the findings of his systems engineering team's studies in clean energy systems to various bodies and agencies at different levels of government. This includes briefing the INCOSE Power and Energy Working Group and providing artifacts and briefings to the Maryland State Senate and the National Science Foundation. Dr. Pavlak himself is

a recognized subject matter expert in the area of clean energy systems. He has published several papers in this area in publications that include American Scientist, IEEE Spectrum, The Electricity Journal, and INCOSE. Dr. Pavlak was presented with the Best Paper Award at the INCOSE 2012 International Symposium in Rome, Italy, for his paper titled Engineering Clean Energy Systems. Dr. Pavlak is an active member of the Chesapeake Chapter. He is the current Program Director and chairs the Chapter's Future of Energy Working Group.

Upon receiving the award, Dr. Pavlak remarked "The SEY award is a great honor. For years I felt I was a lone voice in the wilderness talking about how to develop clean energy systems. It is gratifying to be associated with an organization that understands what I am trying to say." Dr. Pavlak exemplifies the model for the Systems Engineer of the Year. Congratulations, Dr. Alex Pavlak!

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## In Memory of Carol Ann Hutchinson

*by John W. Lewis and Donald York*



*Carol Hutchinson*

Ms. Carol Ann Hutchinson served as a distinguished member of the Chesapeake Chapter of the International Council on Systems Engineering (INCOSE) for more than a decade. She was a key contributor to systems engineering projects across the community. After a year-long battle with cancer, she passed away Tuesday evening, 12 February 2013. We will all miss her. Carol served as a Senior Member of INCOSE, joining the organization on 1 September 1994. Carol contributed to nearly every job in INCOSE. Whenever anything needed to get done, she got it done and quickly. If there were papers to

review for a conference, she got them done, all of them. If there were reviews for the chapter circle awards, she got those done too. She helped members learn the Systems Engineering trade. She recruited and motivated members. She chaired the evaluation committee for the Chesapeake Chapter's Systems Engineer of the Year (SEY) award. Carol also served as the Chesapeake Chapter President in 2006. In Scottsdale, Arizona, she joined over 230 working group members and leaders from across INCOSE to work together on current projects and new initiatives at INCOSE's International Workshop. That year our chapter won the **Best Chapter Award** in addition to the **Gold Circle Award**. Carol was a key contributor and played a significant role in the Chapter attaining those awards. Finally, Carol was an awesome technical contributor. She started her career at Bell Labs when it was challenging to be a woman in the profession and at the same time raise a family. She did it well. Since then many of us have worked with Carol on technical projects in the community. She was relentless, always a good partner. Yes. We will all miss her.

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## Did you miss last month's lecture?

### Flexibility in Engineering Design



*Dr. Richard de Neufville*

Flexibility in design is an idea whose time has come. Experience indicates that the use of flexible design for the design of major infrastructure systems can lead to significant, double digit percent improvements in expected value. Computational and methodological advances now enable us to investigate the performance of designs under multiple scenarios, and to identify those that can perform best over the range of possible eventualities. This talk describes the approach combining screening models, simulation and subsequently optimization. The presentation will illustrate flexibility in design with a range of example applications to major systems, in particular power systems faced with major changes in fuel prices, the source of energy production, and in the demand for electric power.

[>>Check out the complete write-up on the event<<](#)

[>>Download Presentation Here<<](#)

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## Upcoming Events

- April 9: President Elect Erik DeVito will present a lecture on INCOSE and the Chesapeake Chapter for the PMI Baltimore Chapter. [Click here for details](#)
- April 17: Radical Leadership: Practices for Building Innovative and Adaptive Environments. *Dr. Suzette Johnson, Northrup Grumman Corporation*
- May 15: Environmental Economics: How Maryland assigns value to environmental impact *Dr. Robert Summers, Secretary, Maryland Department of the Environment*

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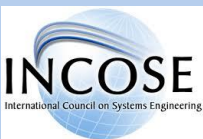
## Volunteers Wanted!

### Workshops Manager

The Chesapeake chapter is increasing the number of weekend workshops that will focus on skill development and system engineering tools. Programs is looking for several volunteer workshop managers to support this effort. The job description includes:

- Primary point of contact with the instructor collecting information on abstract, course description, instructor bio. Consolidating content for flyers and announcements.
- Primary point of contact with JHU/APL arranging dates, room, access, and food.
- On site presence, collecting walk in fees, issue badges, sit and enjoy the workshop

Anyone interested in volunteering please contact Alex Pavlak, Program Director at [Alex.Pavlak@INCOSE.org](mailto:Alex.Pavlak@INCOSE.org)



Keep up with the latest news and events. Find out about our new Board of Directors. Explore our extensive library of previous lectures from our Monthly Dinner Meetings. Learn of the Benefits of Joining INCOSE. Check out Systems Engineering education in the local area. All this and more awaits you at our [INCOSE Chesapeake Chapter Website](#).

For any comments or suggestions about this newsletter please e-mail our [President, William Ewald](#) or our [Communications Officer, Oren Eisner](#). We value your feedback.

#### Board of Director Officers, 2013

- President: Dr. William Ewald
- Past President: Dr. Don York
- President Elect: Dr. William Ewald
- Treasurer: Mr. Richard Bentley
- Secretary: Mr. Mark Kaczmarek

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- Communications: Mr. Oren Eisner
- Programs: Dr. Alex Pavlak
- Membership Committee: Mr. Bob Lecorchick