



Chestnuts Roasting on an Open Fire, Jack Frost Nipping at Your Nose (Highlights from the Holiday Celebration)

Okay... There were no open flames and Jack Frost did not make an appearance in Orlando, but if you attended the Holiday Celebration you'll agree a fun time was had by all!

It was a relaxing social environment where guests were able to catch up with one another and share their plans for the holidays, all while sounds of the season played in the background.

Puff 'N Stuff catered a delicious buffet full of sweet and savory items. No one went home hungry that night!

Judith Feliciano challenged us with trivia questions about INCOSE and the Orlando chapter. Guests who answered questions correctly

were given a chance to win gift cards from various local merchants. Many went home with some extra plastic in their pockets. And those who didn't? Well... they went home with lots more knowledge of INCOSE.

The highlight of the evening would have to be when Ed Smith, INCOSE Orlando Chapter President, surprised Jack Baumgardner with an award recognizing him for his commitment to the chapter as past Chapter Treasurer and the many other ways he has supported the chapter during his tenure. It's an award well-deserved. Congratulations, Jack!

From there we said our farewells for 2008 and began looking ahead to 2009.

SysML Overview & Application Results

Sandy Friedenthal of Lockheed Martin joined us as the guest speaker at the January chapter meeting. His presentation on SysML and how it can be applied stimulated some interesting discussion amongst those in attendance.

Sandy pointed out that SysML is a language that's a critical enabler of model-based systems engineering (MBSE). He also noted that some of the great challenges are in connecting or integrating models across various domains.

A key concept behind the use of SysML in MBSE is the flow down of behavior, structure, and

requirements from the System of Systems level to the component design and implementation levels.

He says over time this will become rote as we grow more accustomed to working this way, but we're not there yet. When we get there it will be such a normal part of how we do systems engineering that the "MB" can be removed from MBSE.

To view the entire [presentation](#), visit the INCOSE Orlando web site and check the info for the "Orlando Chapter January 2009 Meeting".

UPCOMING CHAPTER EVENTS

February 19: Chapter Meeting
Dr Rob Cloutier, Stevens Institute of Technology
Patterns as Applied to Design and Architecture

Topics for future meetings are being finalized, but go ahead and mark your calendars!

March 19: Chapter Meeting

April 16: Chapter Meeting

May 21: Chapter Meeting

Details on upcoming events will be posted on the [INCOSE Orlando web site](#).

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President's Corner

INCOSE Orlando has been working with The University of Central Florida (UCF) and IBM since June 2006 to establish a Systems Engineering Laboratory in Orlando. The Institute for Advanced Systems Engineering (IASE) is now providing system engineering facilities (hardware/software) to INCOSE members (including new Student chapter), UCF faculty and students, and professional feedback for IBM and other institute providers.



Directors of the IASE include academia, industry, government and professional organizations, such as INCOSE.

The IASE is currently housed in the UCF Engineering Building II with plans to move it into a more readily accessible space located within the Central Florida Research Park. Army PEDSTRI had planned space for the IASE within the Partnership III building.

The IASE's website is: <http://www.iase.ucf.edu/index.html>

An effort is underway (definition phase) for an INCOSE member to begin to:

- Define a detailed Prescriptive Requirements Analysis process using specific applications within the lab.
- Define a detailed Prescriptive System Architecture process using specific applications within the lab.
- Identifying and describing the Relationship of System Architectures and Design Patterns.

For more information on the IASE or to see how you can get involved please contact [Ed Smith](#), President, INCOSE Orlando.

SysML Tutorial a Hit!

Following a successful presentation at the Chapter meeting on January 15th, Sandy Friedenthal spent another day with INCOSE Orlando members and guests conducting a tutorial delving further into SysML, with discussion of methodologies and real world examples.

The tutorial was based on his book, "A Practical Guide to SysML".

Feedback from those participating in the tutorial show that most found it informative and provided them with tools and techniques they can apply to their jobs.

A few books are still available on a first come, first served basis. Please contact Becky Matz at 407-243-3795 if you're interested in purchasing a copy at special INCOSE Orlando prices.

\$40 for members and students
\$50 for non-members

More Tutorials on the Way!

Our Tutorial Chair, Waldemar Karwowski, is busy planning more tutorials for 2009, including one on Human Systems Integration (HSI). To read more about research being done in the area of HSI turn the page.

Your input is important to the success of the Chapter. If you have ideas for tutorial topics, monthly meeting presentations or other activities we'd love to hear from you.

Be sure to talk with us at the next chapter meeting or contact one of us. Contact info for officers and directors is available on the chapter web site's [contact page](#).

News from UCF

Measuring Human Systems Integration Return on Investment

The introduction of Human Systems Integration (HSI) in systems acquisition processes presents human systems engineers with the challenge to provide quantitative value-added positive contribution, in terms of cost and schedule. Human Systems Integration tools and methods can provide program managers and systems designers with answers to questions crucial to successfully meeting this challenge. While there is a need for more comprehensive HSI tools and techniques, what is lacking is guidance and understanding on what these methods and tools can provide in terms of reducing life-cycle costs of projects, improving overall systems performance and increasing safety. Previous research in HSI indicates that employing best practices can shape better system decisions. The purpose of current research is to describe the development of a framework to measure HSI return on investment. Although decision-making theories have existed for a long time, the application of decision science into systems engineering to evaluate HSI return on investment is a new contribution to the field of systems engineering. The weighted multi-criteria model for leveraging the effect of multiple performance measures is anticipated to provide a better technique to quantify and evaluate HSI return on investment for overall system performance. Our next steps will be to evaluate the HSI-ROI performance by accessing real project data in operational environments. This research also provides much needed guidance to acquisition programs as well as support towards the ongoing research for the development of a decision support tool for human systems engineers and program managers.

IBM Systems Engineering Laboratory at the University of Central Florida

IBM Systems Engineering Laboratory is one of the fourteen laboratories of the Department of Industrial Engineering at the University of Central Florida. The laboratory is responsible for teaching basic and advanced systems engineering to students in the College of Engineering and Computer Science (CECS). The laboratory also supports the Institute for Advanced Systems Engineering (IASE). IASE promotes the cross disciplinary research and education in systems engineering at the University of Central Florida and is committed to developing advanced solution methodologies and tools for basic and advanced systems problems in a variety of application domains. Research activities of the laboratory are closely related to the long-term research on human systems integration as well as other systems engineering research projects. IBM Systems Engineering Laboratory is equipped with the latest state-of-the-art hardware and software including IBM Rational Unified Delivery Platform and Systems Modeling Language (SysML). The laboratory was established as part of the Institute for Advanced Systems Engineering (IASE) for the purpose of promoting long term research in systems engineering. Furthermore, IASE continually runs several research projects in cooperation with INCOSE Orlando, UCF Systems Engineering Chapter (SEC) and industrial partners.

For more information please visit: <http://www.iase.ucf.edu/about/index.html>

Human Systems Integration Software Development Based On SysML and IBM Rational Unified Delivery Platform

A team of Researchers from the Industrial Engineering Department at the University of Central Florida and two leading software development companies, IBM and Embedded Plus Engineering, are currently working the development of the human systems integration software component based on systems modeling language (SysML) and IBM Rational Unified Delivery Platform (RUDP). Human Systems Integration (HSI) is the area of systems engineering that focuses on the human component of every system to help resolve system designs that do not adequately consider the human aspect, thus

resulting in poor mission performance and unnecessarily high costs. In this research project, researchers will develop a framework for human systems integration software component to be integrated with SysML/UML based on IBM's rational unified platform and Jazz components. The human systems integration component in systems engineering recognize the human as an integral element of every system and ensures that human considerations have a prominent place in the integrated design and development of systems, and throughout the total system life cycle.

More...News from UCF

The Institute for Advanced Systems Engineering (IASE)

The Institute for Advanced Systems Engineering (IASE) is an interdisciplinary research unit in the School of Engineering and Computer Science at the University of Central Florida. It's home to cross disciplinary research and education programs in systems engineering and is committed to developing advanced solutions and tools for systems engineering problems in a variety of application domains. IASE based projects are conducted through partnerships with industry leaders and government, bringing together faculty and students from multiple academic departments and colleges across the university and Central Florida industry partners.

IASE was established at University of Central Florida to advance and support central Florida research in Systems Engineering.

IASE faculty conduct research at the forefront of many disciplines. Some of our current research emphases include:

- Product Realization Systems
- Manufacturing Engineering
- Neuroscience Engineering
- Health Care Systems
- Advanced Control systems
- Systems Engineering Methodologies
- Supply Chain Management

IASE offers a productive and stimulating collaboration between the University of Central Florida, industry and government to conduct research to solve challenges facing industry and business, and to educate the next generation of systems engineers who help fill job openings created by the substantial number of retirements coming in the engineering workforce. Industry members benefit from:

- Access to experienced researchers in multiple disciplines of engineering at the University of Central Florida
- Leading-edge research projects jointly developed by industry leaders and university experts
- Interchange of ideas and collaboration among academia, industry and government on crucial systems engineering issues
- Efficient contact with researchers and industry experts

Member News

Current membership in the Orlando Chapter stands at 92 as of month-end December 2008.

If you haven't renewed your membership yet or you're interested in becoming a member, visit the [INCOSE Membership page](#) or contact [Jerry Gordon](#).

New Members (December)

Ahmed Hashim, University of Central Florida

Kenneth Wadman, I-3 com/ Integrated Systems

Welcome to INCOSE Orlando!



Do you dream about Green systems? Do you deal with increasing system complexities? Then the INCOSE Region V Spring 2009 Conference is definitely for YOU! April 2 – 4, 2009

Virginia Modeling, Analysis and Simulation Center (VMASC)
Suffolk Facility - VMASC West
1030 University Blvd.
Suffolk, VA 23435

The conference theme is *Systems Engineering – Affordable Success*. It focuses on the means and tools to lead and create organizations that develop affordable systems. It is known that systems complexity has dramatically increased over the last two decades. It is therefore even more important to develop leaders and processes to more cost effectively track development costs, calculate complexity, and leverage known solution and techniques. Tutorials (ranging from 1 to 3 hours) and Papers (45 minutes) in all areas of systems engineering leadership, green solutions, and complexity are encouraged. Discussion and discovery are the intentions of these collaborative sessions.

The CALL for Tutorials and the CALL for Papers can be found at: <http://www.incose-spring09.org>

For more information, please contact Tom Herald at (407) 242-1470.

Systems Engineering News Sources: Project Performance International

Looking for more news sources on Systems Engineering and related fields?

Project Performance International produces a monthly newsletter called "SyEN" that offers news on conferences, education and conferences, featured articles and much more. You can subscribe to the newsletter for free by visiting the [PPI web site](#).

And continuing with the theme of Human Systems Integration seen in this issue of the INCOSE Orlando newsletter, the featured article in the January issue of SyEN is entitled "[is Cognitive Systems Engineering and Why Should](#)

You Care?"

Gavan Lintern, PhD explains that Cognitive Systems Engineering fits well into the domain of Human Systems Integration. An interesting and important point made in the article is that "we do not want to integrate humans with technology but rather to integrate humans with humans and humans with work and use technological capabilities to facilitate that." In other words, as he notes, "technology must be subservient to the human."

Be sure to check out the January issue of SyEN as well as previous issues on the [PPI web site](#).

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