NEWSLETTER

2002, 2004-11   **2003**

2008 President's Award for Most Outstanding Chapter

INCOSE
International Council on Systems Engineering
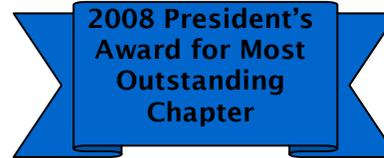
UPCOMING EVENTS

For more details on Chapter-sponsored events and registration, go to
http://www.incose-la.org

April Speaker Meeting
"Systems Engineering Tools: Benefits of Automation"
Speaker: Sam Bertic
Date and Time: Tuesday, April 9, 2013, 5:30 p.m. – 7:45 p.m.
Where: BAH LAX (El Segundo) and remote sites
See article on page 3 for more information

April Networking Event
Date: Wednesday, April 17, 2013
Check the INCOSE-LA website for additional details

May Speaker Meeting and Tutorial
"How to Design the Right Amount of
Systems Engineering Controls"
Speaker: Rich Hefner
Speaker Meeting Date and Time: Tuesday, May 14, 2013,
5:30 p.m. – 7:45 p.m.
Tutorial Date: Saturday, May 25, 2013

See more upcoming events on page 3

Inside This Edition

WE'RE ONE BUSY CHAPTER!

In preparing this issue of the INCOSE-LA *Newsletter* the editorial staff found itself with an abundance of material including reports on outreach to the next generation of systems engineers, speaker meetings, our own Mini-Conference, the 2013 INCOSE International Workshop, and even an interview with INCOSE President John Thomas. Talk about being like a kid in a candy store! How could we possibly decide what to publish in a single issue? That's easy – we couldn't. Over the next several issues we will share the experiences of INCOSE-LA members at these exciting enrichment opportunities while still putting an emphasis on time sensitive items such as upcoming events. Enjoy!

—The Editors

An Interview:
INCOSE President John Thomas on the Value Proposition of Systems Engineering

At the opening plenary of the International Workshop in Jacksonville, Florida, in January, INCOSE President John Thomas addressed the systems engineering community, sharing insights from his experience on how to successfully communicate the value of the discipline. After the plenary he spoke briefly with the INCOSE-LA Newsletter, further elaborating on his experience in working with executives who, as customers, make decisions on investments in new systems, and therefore need to better appreciate the role of the systems engineer.

Thomas said that his goal with such executives is to get them to see that "you, the person who has the money […] are making an investment of this money because of the system behavior." Thomas emphasized that the behavior of the product as a system is the entire reason for the expenditure.

Thomas has been testing an approach that he has evolved over the past three years, "targeted toward the directors, vice-presidents, and presidents of organizations," he said. "These senior managers make systems-engineering investment and resource decisions." Thomas pointed out that the decisions he wants to influence are "based on logic and emotion."

Thomas begins his approach to senior managers by pointing out that sales of their organization's products or services are "driven by the value received from the system behavior of the product or service, not the product or service itself." He goes on, "We systems engineers know it is our job to focus on delivering system behavior your customer values, and we are leaders of

The International Workshop
By Stephen Guine and Jorg Largent

The INCOSE International Workshop was conducted in Jacksonville, Florida, in late January. The opening plenary on Saturday, January 26, 2013, featured recognition of many individuals who have contributed to the profession, a report on the performance of the organization, and a speech by INCOSE President John Thomas on the plans for the organization and the challenges faced by the profession. Over 220 people from the United States, plus 48 from twelve other countries, registered for the event. Many major corporations were represented, and strong corporate support was represented by senior managers from Boeing, Lockheed Martin, Booz Allen Hamilton, Mitre, and Aerospace, among others. Increasing participation by decision makers is indicative of the growing appreciation for the professional systems engineer and for INCOSE.

The opening plenary included a report that the certification program is bearing fruit with a notable increase in the number of Certified Systems Engineering Professionals and Expert Systems Engineering Professionals. One presentation listed all of INCOSE's liaisons with other standards-authoring bodies (the International Organization for Standardization [ISO], the International Electrotechnical Commission [IEC], the Institute of Electrical and Electronics Engineers [IEEE], and the American Institute of Aeronautics and Astronautics [AIAA]), noting on which standards the organizations are currently collaborating, and when they will be released or updated. A key point was that these other organizations are looking for INCOSE to take the lead vis-à-vis systems thinking for these standards, and looking

Eric Belle, President of the INCOSE-LA Chapter, received an award for his dedicated service on the INCOSE Board of Directors

to the INCOSE membership as the subject-matter experts for systems. ISO/IEC is looking for and welcoming greater INCOSE interaction for systems-engineering standardization across specifications, similar to the efforts shown in synchronizing ISO/IEC 12207 and 15288.

INCOSE President John Thomas concluded the opening plenary. Interestingly, Thomas commented that one can define systems engineering by simply stating that every system exhibits behaviors that have value in the market. He talked about "more investment of income," noting that the organization has sources of income other than dues, which could be used to strengthen the organization and the profession while increasing the recognition of the worth of the systems engineering professional. He noted that the role of the systems engineer is to ensure

Overheard at the IW: "I've got way too many slides."

that that value is developed and taken to market for the betterment of the systems customer and all stakeholders.

Another way he put it was to note the many products now marketed with smart prepended: smart grid, smart home, smart infrastructure. "Smart," he said, only happens with systems engineering. Thomas concluded his discussion with the illustration of a "system of systems" that enables a particular behavior: siga-lert.com.

The remainder of the workshop was working group meetings on a variety of subjects. Systems engineers from the Los Angeles Chapter participated in several, and the *Newsletter*, will publish their reports in coming issues, space permitting. One of the benefits of INCOSE working groups is that the same issues were brought up with different shading in each group, affording the systems engineers an opportunity to learn about methodologies that, potentially, could be tailored for use in their own domains.

Since these were working groups rather than just presentations, much of that information came out via nuances in the conversations. Even in the organizations or individuals that felt they were seeing success, some common themes tended to run through.

Concern number one was that even when business value is being delivered, because of the time frames or life-cycle phases where the value is fully realized, the systems engineering professionals and organizations often don't receive credit. Sometimes the value is captured by production and manufacturing or project management. Significant recurring conversation among all work groups focused on how systems engineering identifies and captures value.

Len Troncale and James Martin on a break from the Systems Science Working Group discussions at the mixer hosted by the INCOSE-LA Chapter

Some lively discussions about "measures that matter" tied nicely back into the same conversations in the Lean Systems Engineering Working Group as to which numbers are captured because "we've always captured them," which numbers we collect simply because of senior leadership's desire to see numbers even though they are non-actionable, and which numbers are truly meaningful. Within those constraints is a question: What are the appropriate sensitivities for those numbers?

A repeated theme heard among the various "domain" work groups was how they saw systems engineering being leveraged in their industries (automotive, transportation, biosciences, power and energy, et al.) and the attendant challenges. They are looking for opportunities to leverage knowledge inherited from the Department of Defense and the aerospace industry while tailoring the approaches and deliverables to their industries and environments.

APRIL SPEAKER MEETING
Systems Engineering Tools: Benefits of Automation

PRESENTER: Sam Bertic, Certified Systems Engineering Professional

SUMMARY: This presentation on the automation of systems engineering processes will highlight several case studies, identify the capabilities of the tools used, and highlight the benefits and pitfalls. Participants will gain and share knowledge of various tools—homegrown as well as commercially marketed—that have been developed over the years for automating tracking, documentation, reporting, and change control.

WHEN: Tuesday, April 9, 2013, 5:30 p.m. to 8:00 p.m.

HOST SITE: Booz Allen Hamilton – LAX Office
5220 Pacific Concourse Drive
Building 5220 - 2nd floor, Suite 200
Los Angeles, California

COST: Members-FREE; Non-members-$10.00

Remote sites and virtual attendance for individual participants will be available.

MEETING AGENDA:
5:30 – 6:00 p.m. Registration, networking, refreshments
6:00 – 6:10 p.m. Welcome and announcements
6:10 – 8:00 p.m. Presentation

Refreshments will be provided at the host site. (Contact remote site contacts or check online for more information regarding parking, refreshments, and other administrivia at their locations.)

PLEASE REGISTER ONLINE at www.incose-la.org "Upcoming Events" BY FRIDAY, APRIL 3, 2013. Those planning on attending at the remote site at the Jet Propulsion Laboratory in La Cañada must register prior to April 3, 2013.

If you are not sure whether you'll be able to attend, DO make an online reservation and indicate that you're uncertain.

ABSTRACT: The automation of various aspects of the systems engineering processes through the use of software applications has been in practice for many years. Both commercially marketed and homegrown tools have been developed that automate documentation, reporting, tracking, and change control. The more sophisticated tools capture functional and hierarchical diagramming, parametric analysis, and simulation. The features and benefits are as varied as the number of programs using them. This presentation will highlight several case studies, identify the capabilities of the tools used, and highlight the benefits and pitfalls.

To reinforce the findings, a survey will be conducted of the INCOSE-LA membership regarding systems engineering tool

New President's Message:
INCOSE-LA 2013
Engaging Our Membership

By Eric Belle, President, INCOSE-LA Chapter

I would like to thank the members of the INCOSE-LA Chapter for welcoming me as your President once again. This Chapter and organization have been an important part of my professional and social life for a number of years, and I am honored to have the chance to continue to give back to both. I write this article in the glow of the aftermath of another successful Mini-Conference, just held on March 16, 2013. The Mini-Conference Committee, who pulled off another success, and the 2012 INCOSE-LA Board of Directors, who laid the groundwork, are to be congratulated.

Looking forward, it is clear that we continue to operate in an era of uncertainty. With that in mind, it is prudent to continue with the strategy laid out by last year's leadership to seek ways to maximize value to our existing members while reaching out to other interested parties. In the next few weeks we will finalize our Strategic, Operations, Communications, and Membership plans to ensure that we have a course by which we can establish a path and measure our progress. We invite all interested parties to provide inputs; the plans themselves will be made available for comments and review, as they will be living documents.

As for specific items we will pursue, our board has already set some lofty goals in terms of offering a full slate of activities: speaker meetings, tutorials, conferences, and networking events. The successful establishment of student divisions at USC and LMU will require our continued support even as we investigate the possibility of adding more institutions of higher learning to this list. As always, we shall strive to provide the planning,

MORE UPCOMING EVENTS

Financial and Investment Planning:
2013 Changes and Moving Forward

Hosted by Wells Fargo
(a repeat of the INCOSE-LA October 6, 2012, Event)
Date: Saturday, April 20, 2013
Time: 12:00 noon – 2:30 p.m.
Where: 2321 Rosecrans Ave., #2275, El Segundo
Cost: Free, and lunch will be provided
Registration: Joel Miller at joel.miller@wfadvisors.com or
714-940-3128 (limited to 15)
See article on page 11

International Symposium,
Philadelphia, Pennsylvania

June 24 – 27, 2013
Register before May 12 for a reduced rate.
Go to http://www.incose.org/symp2013/ for additional details.

Conference on Systems Engineering Research

Spring 2014 in Los Angeles
(*Volunteers Needed! Contact cser2014@incose-la.org*)

The Not-So-Mini Mini-Conference

By DeAnna Regalbuto

On Saturday, March 16, 2013, INCOSE-LA once again had the privilege of holding its annual Mini-Conference at Loyola Marymont's University Hall. Over 100 attendees participated in 26 presentations and panel discussion spread across three tracks; "Using Systems Thinking," "Career Development," and the "Systems Engineering Camp". In addition to the traditional industries of aerospace and defense, representatives from career development companies, medical enterprises, the automotive and trucking develop industry, and the entertainment industry were present. The excellent price of only $35.00, including a light breakfast and lunch, was made possible through the volunteer efforts of the presenters and organizers as well as the generous support of the conference's co-sponsors; California Institute of Technology Center for Technology and Management Education (CTME), Certification Training International, Loyola Marymont University, Microcosm Astronautics Books, Phoenix Integration, Project Performance International, University of California Irvine Extension, Vector Graphics, and Vitech.

Mini-Conference sponsor CTI (Certification Training International) is offering $300.00 discounts for their Certified Systems Engineering Professional training to members of the Los Angeles Chapter. Chapter members may obtain the discount at www.certificationtraining-int.com by entering code DM-300.

Details on the conference's content will be made available in future issues of the INCOSE-LA Newsletter. In the mean time INCOSE-LA wishes to thank the hardworking Mini-Conference committee: Shirley Tseng, Paul Cudney, Harvey Soldan, Padman Nagenthiram, and Dick Emerson.

Mini-Conference Committee Members (left to right): Shirley Tseng, Paul Cudney, Harvey Soldan, Padman Nagenthiram, and Dick Emerson

Sam Bertic of Vitech, a sponsor of the INCOSE-LA Mini-Conference, talking with one of the attendees.

Board of Directors member Shirley Tseng chats with Kent Palmer of Onticity at the INCOSE-LA Mini-Conference.

PICTURES OF INCOSE-LA MINI-CONFERENCE AND ACKNOWLEDGEMENT OF OUR SPONSORS!

Stephen Guine leading Career Transition Panel discussion with panelists Pam De Liz, Dennis Wonica, and Joel Davidson

Bo Oppenheim was the moderator of the panel on Systems Thinking featuring (from left to right) panelists John Carfora, Ph.D., Associate Provost, LMU; the Hon. Ricarda Kessebohm, LL.M., Consulate General from the Federal Republic of Germany; Azad Madni, Ph.D., Professor and Director, Systems Architecting and Engineering, USC; and Dr. Stephen Tarzynski, Chief of Pediatrics at Kaiser Permanente in West Los Angeles.

Susan Ruth and Paul Cudney lead the registration effort at the Mini-Conference.
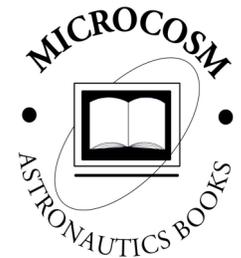
CSEP
PREPARATION
COURSE

CTI's CSEP exam preparation workshop, delivered over four days, is designed on leading edge adult learning principles, optimized for the type of content that needs to be mastered.

Throughout the course there is a strong focus on interaction, variety, the social aspects of learning and integration with the learner's existing knowledge framework.

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CTI'S PREPARATION WORKSHOP WILL EQUIP YOU WITH THE ESSENTIAL TECHNIQUES, TOOLS AND TIPS TO ENSURE YOU PASS THE CSEP EXAMINATION.

SOME UPCOMING USA DELIVERIES FOR 2013

| 29 Apr - 2 May **Albuquerque, NM** | 13 May - 16 May **Denver, CO** | 22 Jul - 25 Jul **Las Vegas, NV** | 9 Sep - 12 Sep **Austin, TX** | 11 Nov - 14 Nov **Los Angeles, CA** | 2 Dec - 5 Dec **Las Vegas, NV** |

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teams that specify and package those system behaviors into a product or service; we share the job of specifying and packaging the parts of a system with many others."

He acknowledges that the organization may not have any employees with "systems engineer" in their titles, but Thomas continues, "If you have customers buying what you sell, then you have people who relish the idea of delivering the system behavior your market wants. Title or not, those people are behaving the way a systems engineer thinks and operates. I bet you consider those individuals [to be] some of your most valuable assets." Often managers will immediately understand this connection, responding, "I never have enough of those people. Do you know where I can find some good ones?"

Sometimes though, said Thomas, further explanation is in order. So he describes a hypothetical situation for the manager to consider. "Let's say you produce vehicles. A customer gives you $300 million to develop a vehicle that can take a 60-degree curve at 200 miles per hour. The focus for the investment is the system behavior, the ability to make that turn at that speed. They didn't knock on your door for 'just a vehicle.'" Thomas points out that that "just a vehicle" is available elsewhere, for a lot less money. He stresses, "It is not the packaged vehicle, but the system behavior embodied by the packaged vehicle, that's worth $300 million to them. That vehicle is made from parts; each part has specific capabilities and each must interact with the others in very specific ways to produce a vehicle that takes a 60-degree curve at 200 mph. If I, as a systems engineer, don't do my job, then your customer will have spent $300 million, but your people will only have a bag of parts to give them." At this point Thomas reiterates his bottom line: "We systems engineers ensure the parts interact with each other to produce the behavior your customer values."

Thomas said often executives respond to this example with "I got it. Tell me the one-liner again." And he does: "My job is to deliver the system behavior your customers and stakeholders pay money for and your profit lines are dependent on."

But what happens if the conversation shifts to a more focused or more detailed systems engineering emphasis? Then, Thomas said, "the message is lost." Thomas explained that the message is: without somebody worrying about the value proposition, the components and their interaction won't add up to the purpose for which customers are investing their money. Thomas illustrated the message with his hypothetical: "The value proposition for you, the customer, is $300 million, that behavior. That behavior can't come from one of the components. It can only come from the proper definition of the components and how they interact, and I, the systems engineer, am the one who worries about that problem for you, the customer." Again, that's "the only reason you spent that money to begin with." The value of the systems engineer is that he or she is "the only one who is worried about how do I make sure that these parts actually become more than just a bag of parts."

Thomas said, "What I shared at the plenary was that I have had the honor now of talking to a bunch of VPs and executive VPs at many, many different levels, very few of them technical, and they go, 'So that's what you guys are about—protecting my bottom line investment.'" Thomas pointed out that "when we do it right," systems engineers can also tell contributors of various parts of the whole why their contributions are important, explaining the impact of their work on the behavior of the final system.

Thomas's hyperbolic example of a $300 million investment in a car with capabilities far beyond anything they know is directed toward getting people to realize "that's why somebody would pay $300 million—nobody else can do that. I'll put down $300 million down to that, except I'm putting it down on that behavior; success for me isn't whether it was colored black or green, all that money is for one result." Thomas said that's when the senior executives "finally get it."

The approach Thomas described, he said, is "the result of thinking about this for five years: how do I make something stick? Who would spend money and ever not go 'I don't want a dozen systems engineers, I want three dozen of them because they are the ones who are going to keep this whole crazy train interacting together to finally get that behavior.'"

> *"We systems engineers ensure the parts interact with each other to produce the behavior customers value."*

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activities, and infrastructure necessary to achieve the coveted INCOSE Gold Circle Award, a symbol of a healthy, vibrant Chapter. My recently concluded two-year membership on the INCOSE International Board of Directors has provided me with keen insight into the larger organization, and valuable knowledge and contacts from the greater organization as a whole. I will strive to bring essential lessons and ideas from around the world into our chapter, just as we share our successes with other chapters.

I hope to make the greatest impact this year in the area of membership. Although we are among the largest chapters within INCOSE, our size has plateaued at just over 400 over the last few years. I am especially concerned about those who choose not to renew their membership after a short time. Our message, to borrow a phrase from my San Francisco colleague Dave Mason, needs to be the answer to a simple question: What is the value proposition that INCOSE membership brings to an individual? We on the Board of Directors hope we can show our members that we continue to strive to answer that question through the activities and services available at the local level.

As a parallel to that effort, another vitally important item to pursue is the actual engagement of Chapter members with the activities and support structure of the Chapter. The elected and appointed members of the Board of Directors and the committee members of our conferences are without a doubt our most valuable asset. All Chapter activities depend upon these hardworking individuals, and we are always seeking fresh ideas and enthusiastic colleagues to bring our Chapter to new heights. I urge any who are interested to contact me or a member of our board, and I will make it a point this year to go out of my way to encourage and recruit many of you.

Thank you all again for the opportunity to serve you. I look forward to another successful and fruitful year in 2013.

A Warm Welcome to the INCOSE LMU Student Division

By "Bo" W. Oppenheim

On December 1, 2012, Loyola Marymount University (LMU) was added to the growing list of universities with an INCOSE Student Division. The initiation party was held in the elegant McIntosh Center of the LMU University Hall, overlooking the atrium. The excellent food and bar were generously sponsored by INCOSE-LA. David Mason, national INCOSE Student Division Director, represented INCOSE International. INCOSE-LA was represented by John Silvas, 2012 President; Eric Belle, 2013 President; Scott Birtalan, liaison for the LMU Student Division and the organizer of the event on behalf of INCOSE-LA; and Sam Bertic, Michela Munoz, Waltraut Fehrmann, Jessica Mubaraki, and Karen Miller. Fifteen students, most already registered and the rest in the process of registering, attended. The faculty were represented by Dr. Fred Brown, LMU Systems Engineering Leadership Program Director; Bohdan "Bo" W. Oppenheim, Professor of Systems Engineering, and instructor Karen Miller.

John Silvas initiated the "official" part of the evening with words of welcome and encouragement to students to partake in INCOSE activities. David Mason welcomed the LMU students on behalf of INCOSE International. Fred Brown welcomed the students and guests on behalf of LMU and expressed delight that the university now has an INCOSE Student Division. The INCOSE Division is the fifth engineering professional society student division at LMU. The others are the American Society of Mechanical Engineers, the Association for Computer Studies Educators, the Institute of Electrical and Electronics Engineers, and the Society of Automotive Engineers.

The LMU student officers are Christine Ito, President; Luke Leffingwell, Secretary; and Amor Masry, Treasurer. Their excellent organization of the initiation event was commendable. Additional LMU students joined INCOSE as student members: Ibrahim Aljuhasman, David Dinette, David Hillshafer, Candice McCarty, Mohammad Mougharbel, Abdul Al Muhama, Rosario Pabst, Julio Ramirez, and Dana-Nicole Samuel.

Please join INCOSE-LA in extending a warm welcome to all new student members!

INCOSE-LA Member Receives Career Achievement Award

In February 2013, Mike Wallace (the current Vice-President of the INCOSE-LA Chapter) was given a Northrop Grumman Corporation career achievement award, recognizing his innovation, dedication, technical abilities, leadership, and educational contributions to the B-2 Systems Engineering community. The award was signed by Northrop Grumman executives Gene Fraser, Sector Vice-President, Engineering and Global Product Development (EGPD), and Bob Klein, Sector Vice-President, EGPD - Military Aircraft Systems. The Chapter joins with the systems engineering community of Northrop Grumman in applauding Mike's contributions to the discipline of systems engineering.

On Human Error: The February Speaker Meeting

By DeAnna Regalbuto

Why do smart people do dumb things? This was the question addressed in part at our February speaker meeting, and in more depth at the subsequent full-day tutorial, both titled "Preventing Human Error: Why Smart People Do Dumb Things," by Jay Hopkins, founder and president of the Error Prevention Institute. While the academic and professional experiences that led to Hopkins' answer to this question were of themselves interesting (Hopkins is a great storyteller), the 20 traps and tools he has identified over the years are brilliant in their simplicity.

Mr. Hopkins began by noting that even with robust systems analysis, detailed planning, and comprehensive procedures, people still make mistakes! Why? Basically, people still make mistakes because of traps in human nature. For example, people make mistakes when they are hungry, sick, or tired. They even make mistakes when they admire someone so much that they are reluctant to ask questions. (Hopkins calls this the halo effect.) However, if we can recognize when such traps are operating, there are tools we can use to avoid or deal with them.

Hopkins used a number of case studies, including moving a Titan rocket, the space shuttle disasters, dropping and damaging a completed satellite, and a deadly airliner crash, to demonstrate the warning signs that traps were in operation and to identify the tools that were, or could have been, used to neutralize them. He also covered the importance of getting back to basics, why quality and safety initiatives fail, goals that error prevention and systems engineering have in common, and behaviors that enhance team effectiveness.

To structure this identification and mitigation process, Hopkins recommends variations on the football huddle. A football huddle is basically a brief team meeting, usually less than 30 seconds in length, that occurs just before a play, to assess the current situation and strategize next steps. He uses three basic huddle types.

1. AESOP: This huddle requires the least amount of time yet may have the greatest potential for averting disaster. It requires nothing more than a team of any kind getting together for a quick thumbnail sketch of the next play. It stands for Assignment (Clear? Complete? Procedures? Risks?); Equipment (What? Available? Working?); Situation (Go? Ragged Edge? Stop?); Obstacles (Potential Problems? Forward Look); Personnel (Who? Experience? Risks? Illness? Medication? Stress? Fatigue? Hunger?)
2. Lesson: Used on a routine basis to reinforce Traps and Tools training
3. Topic: Used as needed for planning and to find latent errors

For more information, see:
- INCOSE-LA February 2013 Speaker meeting slides: http://www.incose-la.org/events/speaker-meetings/speaker-series/
- Website for Error Prevention Institute: http://www.epifortraining.com/
- Hopkins' monthly article on preventing human error in *Flying* magazine

usage by the members. This survey will include:

- what is being used (specific tools and general types)
- extent of use on programs/organization
- desired results/products from tool deployment
- successes and failures

A review of previous tools studies and the efforts towards classification and standardization will also be presented. The final summarization will provide a listing of key features found to be desirable and beneficial based on the empirical data presented.

ABOUT THE PRESENTER: Sam Bertic's career started in systems engineering at the Naval Electronics Systems Engineering Center in San Diego in 1977. From there he worked for numerous defense contractors and tool vendors including E-Systems Inc, General Dynamics, Zycad Corporation, TD Technologies, Integrated Chipware, Northrop Grumman, and Vitech Corporation in positions such as digital design, testing, requirements analysis, modeling, architecting, process improvement, and systems engineering. His tool experience includes Dynamic Objected Oriented Requirements System, Slate, and CORE. Sam Bertic holds a Bachelor of Science in Electrical Engineering from San Diego State University and Master of Science in Engineering Management from Southern Methodist University. In 2009 he earned the Certified Systems Engineering Professional distinction from INCOSE.

Need a Volunteer?
Tap into the INCOSE-LA Volunteer Databank!

Many of the members of INCOSE-LA have volunteered their services to help people to better understand and apply the systems engineering process. Members of this chapter volunteer their time and talent, speaking to groups about the process and mentoring students in the application of systems engineering in projects such as robotics and rocketry. The Chapter is ready to help with activities such as:

- Understanding the profession
- Learning about systems engineering as a career and career opportunities
- Mentoring student projects

If your group or a group you know of would benefit, please contact the Chapter's volunteer coordinator, Karen Miller at Karmill888@aol.com.

In contacting Karen, please let her know:

- What you would like the volunteer to do (speak, mentor, talk about the profession as a career, et al)
- When the volunteer would be needed, and,
- The contact information of the person with whom the volunteer should coordinate.

NOT A MEMBER? JOIN INCOSE!

Learn more about becoming a member by clicking on:
http://www.incose.org/membership/valueofmembership.aspx

Happy Trails to Larry Earnest

In mid-March the INCOSE-LA Board of Directors received the following message from our Director of Education, Dr. Larry J. Earnest:

"Dear INCOSE Board of Directors, I wanted to take a moment to let you know that I have accepted a promotion within Northrop Grumman. I am moving to the El Dorado Hills, near Sacramento. I will be the Director of Systems Engineering for a product line of Airborne ISR sensors.

Thanks to the many of you who have made my time on the board an enjoyable and rewarding experience. Thank you for the support, guidance, and encouragement you have given me. Even though I will miss you, I am looking forward to this new challenge and to starting a new phase of my career. Please keep in touch. I can always be reached at the INCOSE email address; larry.earnest@incose.org or connect with me on LinkedIn.

Thanks again for everything. Sincerely, Dr. Larry J. Earnest"

Congratulations, Larry. We will miss you, too and we wish you every success in your new endeavors.

23rd INCOSE International Symposium
Philadelphia, Pennsylvania
June 24 – 27, 2013
See you there!

From a mathematical perspective, you can approach data from two general directions. One approach is inductive (drawing a generalization from the data); the other approach is deductive (explaining data from a generalization).

"Beginning Math Concepts for Game Developers,"
John P. Flynt

Errata

The February edition of the *Newsletter* included an article, "A Few More Questions about the California High-Speed Rail Project," by Bohdan "Bo" Oppenheim. Oppenheim acknowledged the source of his data:

D. Albalate, G. Bel, "High-Speed Rail: Lessons for Policy Makers from Experiences Abroad" Research Institute of Applied Economics Working Paper 2010/03.

Dr. Oppenheim's citation of the source of the data was omitted during the production of that edition of the *Newsletter*.

The email address for Karen Miller in the February article, "Need a volunteer? Tap into the INCOSE-LA volunteer databank" should have read karmill888@aol.com. The article, with the correct email address, is reprinted, this page.

The INCOSE-LA *Newsletter* staff regrets any inconvenience caused by these errors.

The Board of Directors wishes to welcome the following new members to the Los Angeles Chapter of INCOSE.

Note: The information listed below is from the member directory and is based upon your initial membership application. If the information is not correct or complete, then please access the member directory (at www.incose.org) to update your information.

Name	Title	Company
David E. Proffer	Student	
Luke J. Leffingwell	Manager	A.P.M Terminals Pacific Ltd
Mr. John (JT) T. Ginn	Senior System Engineer	SAIC
Garrick McNey		
Nicholas (Nick) C. Demogines	Systems Engineering Manager	Moog, Inc.
Thomas (Tom) P. Mullin	Engineer	ENS
Sean M. Dowden	Systems Engineer	Panasonic Avionics Corporation
Julia C. Murray	Senior Systems Engineering	Rocketdyne Inc
Jeffrey (Jeff) A. Beck	Systems Engineer	Northrop Grumman Electronic Systems
Karl Anderson	Assistant Director Portfolio Project Management	Alcon Laboratories
Rex Wiig	President & CFO	Celeris Systems, Inc.
William (Bill) Hubbs	Sr. System Engineer	Lockheed Martin Space System Company
Gerardo Vazquez	Sr, Systems Engineer	Lockheed Martin Space System Company
Dan J. Mabry		

Note: The above table is a list of members who joined INCOSE between January 12, 2013 to March 26, 2013 (since the last *Newsletter* went to publication). The list is in descending order by date joined, with the most recent new member at the top.

Lunch and Learn Investment Planning

Wells Fargo Advisors are continuing their program of financial planning as a service to members of the Los Angeles Chapter. Topics will include looking at 2013 changes, investment planning, consolidating retirement accounts, and working to develop your plan. All attendees will receive a complementary one hour consultation with a financial advisor to go over specific questions or concerns. The first will be held Saturday, February, 2013 from 12:00pm to 2:30p.m. at the Wells Fargo Advisors office at 2321 Rosecrans Avenue in El Segundo. A second offering is scheduled for Saturday, March 2, 2013, in Irvine and will cover a different set of topics, and a third is scheduled for Saturday, April 6, 2013, in San Diego.

RSVP to Joel Miller at (714) 940-3128 or joel.miller@wfadvisors.com.

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Forwarding Service Requested

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded to develop and disseminate the interdisciplinary principles and practices that enable the realization of successful systems. INCOSE's mission is to share, promote, and advance the best of systems engineering from across the globe for the benefit of humanity and the planet. The Los Angeles Chapter meets several times per year for speaker meetings and, in addition, sponsors tutorials, mini-conferences and other activities of interest to those in systems engineering or related fields.

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