



# NEWSLETTER



2002, 2004-12



2003



2008, 2012  
President's Award  
for Most  
Outstanding Chapter



## Los Angeles Chapter Awarded President's Award for Outstanding Chapter in 2012 Chapter also recognized with a Gold Circle Award

On Wednesday, June 26, during the INCOSE International Symposium 2013 Opening Plenary session in Philadelphia, the 2012 President's Award for the Most Outstanding Chapter was awarded to the INCOSE-LA Chapter. John Silvas, the INCOSE-LA 2012 Chapter President, was present to accept this prestigious award on behalf of the Los Angeles Chapter and its members.

John Silvas described this experience as "such a special honor to represent a great chapter on such a grand stage. I know the competition for this special award was tough because there are a lot of great INCOSE chapters around the world that are

*(Continued on page 2)*

## Report from the June 20 Speaker Meeting

*By Jorg Largent*



Major General Terrence Feehan was the speaker at the June speaker meeting. General Feehan is the Vice Commander of the Space and Missile Systems Center. As such, he is responsible for assisting the Commander in managing the research, design, development, acquisition, and sustainment of space and missile systems, launch, command and control, and operational satellite systems. The Space and Missile

Systems Center is the nation's center of technical expertise for military space acquisition with more than 5,000 employees nationwide and an annual budget of \$10 billion.

Gen. Feehan has a broad background in a variety of systems. He opened his discussion by drawing upon his experiences on the F-15 Flight Test program, and, building upon those experiences, led into a discussion of the increasing appreciation of, and growing need for, systems engineering. On the F-15 program he noted that they came to appreciate that they were dealing with a "system of systems." At the time, systems engineering was primarily limited to configuration management, which wasn't "cool." That has changed.

Part of his discussion targeted some of the "we have always done it that way" aspects of the satellite industry. For example, it was common to build a full-scale model and keep it on the ground. Significant effort went into test-fix-test activities, which are increasingly difficult if the mission or the uses of a satellite

*(Continued on page 10)*



2012 Chapter President John Silvas accepting the President's Award from John Thomas, President of INCOSE (left), with Barclay Brown (right), Americas Sector Director, at the 2013 International Symposium

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working hard to advance the systems engineering profession. I also know that without the ingenuity, hard work, and commitment of the Los Angeles Chapter leadership team to its members, and in particular Ms. Beth O'Donnell who led the awards process and submission for 2012, the LA Chapter would not have come out on top. Although any given chapter can only receive the President's award once every three years, I'm confident that the LA Chapter's long-standing heritage of excellence and commitment to its members will continue in 2013 at the same level as it was in 2012 and well beyond because of the great set of volunteers that make INCOSE-LA the special chapter that it is."

The Chapter was also awarded a Gold Circle Award. To encourage and incentivize activities at the local chapter level, the INCOSE awards program acknowledges all contributions worthy of recognition. As such, the annual awards program includes the Gold Circle, Silver Circle, and Bronze Circle awards to recognize all chapters that meet and exceed INCOSE's standards for local service and contributions. To acknowledge the special effort required to significantly improve an INCOSE chapter, the awards program established the Director's Award for Most Improved Chapter. Finally, to provide meaningful recognition of chapter excellence, INCOSE presents the President's Award for Outstanding Chapter annually.

Through the annual chapter awards program, INCOSE has the opportunity to recognize the valuable contributions of individual INCOSE chapters as they strive to enrich, educate, and enlighten the INCOSE membership while improving recognition of INCOSE and the systems engineering profession. Congratulations and thanks are in order for the leadership and the membership of the INCOSE-LA Chapter. Excellent work!



Current Los Angeles Chapter President Eric Belle (left) and 2012 President John Silvas (right) accepting the Gold Circle Award from Barclay Brown, Americas Sector Director, at the 2013 International Symposium in Philadelphia

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## August Speaker Meeting: Human-Centered Model-Driven Architecting and Engineering

**Abstract:** As systems continue to grow in scale and complexity, human-machine interactions and the human-machine interface (HMI) become a crucial consideration in overall system design. In complex systems, humans are often part of the complex system as opposed to being just users of the system. The human mental model, work instructions, and procedures are key attributes that a system architect needs to analyze to ensure the success of the overall human-machine system. Model-based system engineering (MBSE) techniques potentially offer new ways for system architects and engineers to conceptualize and analyze HMI requirements and use the findings to specify its design.

model-based systems engineering on unmanned underwater vehicles, radars, and nuclear power plant instrumentation and controls developments. He has also had leadership roles developing requirements and architectures for maritime systems. In 2010, the Object Management Group certified Mr. Orellana as a System Modeling Professional at the fundamental level, OCSMP-Fundamental.

Currently, Mr. Orellana is interested in researching MBSE and its use throughout the system lifecycle and analyzing the human-machine interface through system modeling and simulations. He was awarded the 2012 INCOSE JHU APL Kossiakoff Award for his research at the 2013 INCOSE International Workshop. He received his M.S. and B.S. in Engineering from Johns Hopkins University.

**WHEN:** Tuesday, August 13, 2013

**WHERE:** The Aerospace Corporation, El Segundo

**COST:** Free for members; \$10.00 for non-members

**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 and questions and answers

Plentiful refreshments will be provided.



**Biography:** Douglas Orellana is a System Architecting and Engineering doctoral student at the University of Southern California (USC). Before arriving at USC, he worked as a systems engineer for Northrop Grumman Corporation to implement

## CSER: Conference on Systems Engineering Research Coming to Los Angeles, March 2014

CSER, the annual Conference on Systems Engineering Research, will be held next March in Southern California. CSER 2014 is sure to be one of the most informative systems conferences of the year. Since 2003, CSER has provided an international platform to showcase innovative systems engineering research. Originally founded by Stevens Institute of Technology and the University of Southern California (USC), CSER has been hosted by a number of universities and has evolved to become a premier venue for presentation of systems engineering innovation. Its success over the years has been a community-wide effort.

The Los Angeles Chapter of INCOSE joined the team in 2004, providing local support for the conference that year as well as participating as one of the sponsors. The Chapter's invaluable support has contributed to subsequent conferences held in southern California (in 2006, 2008, and 2011).

At CSER 2013, researchers from around the world presented papers addressing societal challenges and next-generation systems for meeting them. Papers addressed topics from evolutionary systems to smart grid and infrastructure, workforce training and even defense and aerospace.

Offerings at the 2013 conference at the Georgia Institute of Technology were deep and comprehensive, featuring thirteen topics focused on **systems engineering core concepts** and eight topics associated with **model-based systems engineering** as a theme. CSER 2013 addressed outreach for the profession and the future of the discipline with five topical areas in **systems engineering education and training** and nine groups of presentations on **next-generation systems engineering**. Two other domains were shared at CSER 2013: **multi-disciplinary approaches and needs** with six groups of presentations, and **systems engineering applications** with fifteen groups of presentations.

The Los Angeles Chapter, continuing its role as conference facilitator, is at work preparing for CSER 2014. As in the past, the INCOSE Systems Engineering and Architecting Doctoral Student Network (SEANET) will be conducting a workshop.

Planning began with a kick-off meeting held June 8, 2013. Twenty-two Chapter members participated in the kick-off meeting (three by phone). Dr. Azad Madni and Dr. Barry Boehm, both of USC, are serving as the two General Chairs this year. Marilee Wheaton of the Aerospace Corporation and Dr. Mike Sievers from the Jet Propulsion Laboratory are the Technical Co-chairs. Dr. Elliot Axelband has agreed to help to lead a panel session as he has done in previous years.

The next activities for the team? Bi-weekly meetings to work out the plans (including two social events, one with SEANET and another later in the conference) and coordinate their implementation. **Interested in joining this august group in the facilitation of CSER 2014? Please contact Terry Rector at [terry.rector@incose.org](mailto:terry.rector@incose.org).**

## Report from the Strategic Planning Meeting

June 8, 2013, was a day of planning for the leadership of the Los Angeles Chapter. In addition to the Strategic Planning Meeting, a meeting was held with representatives of other professional societies and another meeting was held to kick-off the work for CSER 2014 (see separate articles). The meetings were held at the S-Café on the Northrop Grumman campus in Redondo Beach. Nineteen Chapter leaders and members, plus visitors from other organizations, attended the meetings.

The Strategic Planning meeting was held to discuss how well the Chapter is meeting its goals for the year and to consider any mid-course corrections that might be in order. President Eric Belle asked that reports be short and succinct, to allow more time for ventilating new ideas and open discussions as to how the Chapter can better address the needs and interests of members. President Belle encouraged those present to share ideas on how the Board can work systematically to raise chapter effectiveness and attractiveness, avoiding the functional silo approach, and incorporate feedback into updated Chapter plans.

Planned topical areas included the administration of the Chapter and addressing membership questions (how to rapidly incorporate potential volunteers into Chapter activities; how to reach out to more non-defense companies) and communications (e.g., a strategy for reaching out to potential sponsors and bring in more content generators from within the membership).

A portion of the discussion was Information Technology, which had "Remote Website Outreach/Recruitment (e.g. other chapters)," the transfer to new INCOSE website tools, and records retention as topical shooters. Regarding the Chapter's speaker meetings and tutorials the question "How do we tap into our membership as a source of interesting topics, tutorials, and potential tours?" was offered for discussion.

Shirley Tseng, the Programs Director and liaison with other technical societies cited a list of pertinent topics:

- Are we addressing the right topics?
- Are we reaching our audience?
- How can we encourage new members and practicing systems engineers to attend Chapter functions?
- Could we cultivate a new member outreach process?
- Local meeting announcements emails
- How can we ensure that the Chapter is meeting members' needs?
- How might members fill gaps in their SE skills?

The Board discussed at length the INCOSE strategic plans—which are, of necessity, global—setting general goals and limits. The Los Angeles Chapter activities are independent, not traceable to global requirements beyond a mutual desire to expand the understanding of the process and to expand the appreciation of the professionals who practice systems engineering and their organization. Rather, our activities are complementary and autonomous.

To provide some insight into the geographic distribution of Chapter members, an analysis was presented which showed that

*(Continued on page 5)*

## A Report from the International Symposium

By Joshua Sparber

The plenary on Wednesday morning at the INCOSE International Symposium in Philadelphia featured Dianne Anderson. Anderson has held numerous executive and managerial positions with British Petroleum since 1983 and is, currently, the executive director of the Great Lakes Energy Institute at Case Western Reserve University. Anderson outlined the current worldwide trends for energy, and the need for system engineers to participate in the designing of systems of energy and power. Most of the growth in energy usage is anticipated in the developing world, in countries not a part of the Organization for Economic Cooperation and Development. India, China, and other developing nations will move ahead of the postindustrial nations of the European Union and the United States in population growth, gross domestic product, and energy consumption.

Historical global energy markets have been dominated by single fuels: wood was superseded by coal, coal was superseded by oil. In the latter half of the twentieth century, nuclear energy, and, later, renewables, began to replace oil. However, these resources may not be sufficient to meet all of our energy needs. In an attempt to control the deleterious effects of the historically popular fuels, the United States and others have begun to adopt Natural Gas (NG) from shale as an energy bridge to cleaner and safer alternatives. Even though NG is cleaner burning than wood, coal, or petroleum, its extraction through expansive underground fractionation techniques breeds troublesome byproducts.

Historical fuels have had long, stable tenures. However, inequalities in their global distribution and impacts of their use have resulted in global conflicts, catastrophic environmental and health impacts, and societal divisions. Infrastructures for energy usage have depended as much upon economics, politics, and the law as on good technical design and technical maintenance. The environmental record of an infrastructure is now quite important.

Worldwide population growth has necessitated the creation of multiple co-existing infrastructures based on multiple energy sources. Single sources will no longer predominate; energy systems of systems will. With growing needs, each of the historical sources has had successively greater carbon content per unit energy: coal more than wood, oil more than coal. The existing established infrastructures and their governing regulations are out of date and often run up against a wall of unintended consequences that prevent progress. Re-coordinating this assortment of infrastructures and developing them into systems that are sufficiently useful, non-wasteful, and productive calls for the skills, abilities, and experience possessed by system engineers. Good policy can be put in place if the correct people are developing the system.



Eric Belle, INCOSE-LA 2013 Chapter President, gets into the spirit of Philadelphia at the International Symposium in June.

*(Continued from page 4)*

the mailing addresses used by our membership range from Orange County to the Mojave Desert and from Goleta to Riverside. The Chapter membership is not homogeneously distributed about the centroid, which is the area of Watts and Downey. Approximately 20% of the members receive their *Newsletter* in Orange County, and there are two “outlier” groups: one in the Antelope Valley and the other in the Santa Barbara/Goleta area. There is a modest concentration in the area around the Jet Propulsion Laboratory and Caltech. The vast majority of the addresses are in a fifteen-mile-deep strip along the coast from Malibu to Dana Point.

The meeting concluded with minor adjustments to the Strategic Plan for 2013, an acknowledgement of the challenges and opportunities to keep the Chapter working toward the goal of meeting the needs of the members, and a keen appreciation of the too-often-unremarked contributions of the many volunteers who make the Chapter what it is.

## Engineered Resilient Systems: Challenges and Opportunities in the 21st Century

March 21–22, 2014, Redondo Beach, CA

[www.incose-la.org/cser2014](http://www.incose-la.org/cser2014)

### TOPICS

We invite original research papers addressing the conception, design and architecting, development, modeling and simulating, production, operation and support of systems; the definition of metrics of performance, and improvement methods; the assessment and mitigation of risks; the definition of critical success factors, and best practices. The refereed research papers at the conference will be complemented with invited talks. Abstracts are invited in broad areas to include:

- Autonomous Resiliency Research and Applications
- Model Based Systems Engineering
- Value-based, Lean, Agile Systems Engineering
- Cybersecurity and System Security Engineering
- Social Networks and Graph Theory
- Early Stage Design Concepts and Economic Value of "ilities"
- Uncertainty and Complexity Management in Complex Systems
- Systems Architecting and Tradespace Analysis
- Cognitive Engineering and Human-Systems Integration
- Big Data and Analytics
- Cyber-Physical-Social Systems
- Systems/Critical Thinking

### ABSTRACTS

Abstracts must include:

1. A Title
2. Full Author Name and Affiliations
3. Complete Address for the Corresponding Author

*Doctoral candidates pursuing systems-engineering-related research are especially encouraged to submit abstracts. One technical track at the CSEAR14 will be devoted to doctoral candidate papers. Please submit your abstract electronically in Microsoft Word (not to exceed 800 words) to [CSEAR2014cfp@incose-la.org](mailto:CSEAR2014cfp@incose-la.org).*

*The University of Southern California in collaboration with the Stevens Institute of Technology presents the 12th Annual Conference on Systems Engineering Research.*



*The primary conference objective is to provide practitioners and researchers in academia, industry, and government a common platform to present, discuss, and influence systems engineering research with the intent to enhance systems engineering practice and education. Papers are solicited pertaining to research in all these topic areas.*

*Organized by the University of Southern California (USC) in collaboration with the Stevens Institute of Technology, managed by the Los Angeles Chapter of the International Council on Systems Engineering (INCOSE), and additionally co-sponsored by others.*

#### Conference Honorary Chair

George Friedman (USC)

#### Conference General Co-Chairs:

Azad M. Madni (USC)

Barry Boehm (USC)

#### Technical Program Co-Chairs:

Marilee Wheaton (The Aerospace Corporation)

Michael Sievers (JPL)

### MILESTONES

Abstract Submission	<b>Sept. 6, 2013</b>
Preliminary Acceptance Notification	<b>Oct. 4, 2013</b>
Draft Paper Submission	<b>Nov. 15, 2013</b>
Final Notification to Authors	<b>Dec. 13, 2013</b>
Submission of Final Paper	<b>Jan. 10, 2014</b>



# Teach for UC Irvine Extension

UC Irvine Extension, the continuing education unit of UC Irvine, is currently recruiting instructors to teach courses in our Systems Engineering Certificate Program. Our instructors are successful professionals, with a wealth of industry experience, who are willing to share their knowledge with adult learners. Courses run between 8 and 10 weeks in length and are taught fully online.

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**[extension.uci.edu](http://extension.uci.edu)**

## Inter-Society Coordination

By Shirley Tseng

The Los Angeles Chapter has been participating in collaboration meetings with other professional societies in Southern California. One such meeting was held as an adjunct to the Strategic Planning Meeting on June 8, 2013. Chapter members Shirley Tseng, Padman Nagenthiram, and Lee-Ann Tseng attended, and they met with Mehrdad Sharbaf (CLAS Institute of Electrical and Electronics Engineers [IEEE] Vice-chair and an adjunct professor), Dennis Wonica (from the Los Angeles and Las Vegas section of the American Institute of Aeronautics and Astronautics), IEEE-LA, Christianna Taylor (from the IEEE Los Angeles Council), and Dennis Chang and Keith Birch (both from the Los Angeles chapter of the Project Management Institute [PMI]). Frank Parth from the PMI board of directors, and Mike Sanders, also from the Los Angeles chapter of PMI, have been regular participants, but were not in attendance.

The agenda for the meeting covered a variety of topics. Sharing information on meetings of mutual interest was discussed. One form of facilitation will be emails describing upcoming events for members of INCOSE-LA. The group also discussed creating a joint calendar to coordinate activities and to minimize scheduling conflicts. The group discussed joint meetings such as tutorials and seminars and topics such as career development and personal development. The lead-time for joint activities was discussed. As an aside, it was noted that the Los Angeles chapter of PMI conducts monthly meetings on Saturday mornings or Friday afternoons.

The Puget Sound Engineering Council, which functions as an umbrella organization for the professional engineering societies in the Puget Sound area, was discussed as a model for a potential Southern California Engineering Council.

Unification of the various professional organizations has been pursued for years. About four years ago the Software Process Improvement Network group and I got together and formed the Systems and Software Chapters Congress (SSCC). The group met twice in El Segundo area, but ran out of money for meetings. IBM (as part of the Systems and Software Symposium) has hosted local meetings as part of their outreach event for the last two years. There has been some feedback in that some societies do not like the limited nature of the SSCC title because not all the societies are systems or software organizations. A change in name to a larger umbrella name such as Southern California engineering Council was considered with the thought that such a name would appeal to more societies.

The group will continue to meet, working to facilitate and strengthen the engineering professions in the Los Angeles area.

## Report from the June Tutorial: Rightsizing Your Process

By Alexander Torres

Rick Hefner, Ph.D., Program Director for Caltech's Center for Technology and Management Education, gave an informative and entertaining presentation about "Rightsizing Your Process: How to Balance Affordability and Project Success," on Saturday, June 1, at the Building S Cafeteria (S-Café) in Northrop Grumman's Redondo Beach location. The event was sponsored and organized by Los Angeles Chapter of INCOSE. For an eight-hour presentation, the tutorial was surprisingly engaging. Rick really drove home the material through simple analogies and related to his audience well through his abundant experience. Topics he covered included the following:

- Why rightsizing your process is critical to business success
- What ISO (International Organization for Standardization), CMMI (Capability Maturity Model Integration), and ITIL (Information Technology Infrastructure Library) say about process
- Policies, processes, procedures, plans: what's the difference?
- Tailoring: what's appropriate?
- Selecting the proper approach for you organization
- How to identify your own best practices
- Getting buy-in from process users

As a student and a novice to the world of systems engineering, I found his analogies and sense of humor particularly helpful in learning the essentials of processes. One analogy that struck a chord with me was Dr. Hefner's opening explanation of how we used a process just to get there that morning. As intuitive as it is, it is still a process with certain policies that we have to abide by, such as the rules of the road and the rules of the spouse (for those who are married). I was able to better understand how processes can range from "tribal knowledge," using more of a mentoring approach in handing down methods, to an instruction manual with rigid documented steps. There are benefits to both and an ideal process lies somewhere in between.

Dr. Hefner focused on written processes, which are usually preferred, and expounded on why they are important, what is involved in their formation, how to tailor them, and which approach is best for a corporation. In group discussions we identified their advantages, including repeatability, ability to be audited, ability to be improved, and geographical consistency. Rick emphasized the importance of identifying and adapting to the appropriate context in process formation by relating it to the annual project of painting his fence. He illustrated that the steps of his process change depending on whether his fence is wooden or plastic. Next, he helped to clarify the meanings of agile and lean processes, the former being more responsive in a changing environment and the latter being value oriented by eliminating "non-value-added" steps. Lastly, he explained that these both help in rightsizing a process along with deciding what scope, complexity, and structure best meet the company's

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<http://www.incose.org/membership/valueofmembership.aspx>

## Report from the March Mini-Conference: Agile Development Panel Discussion

The INCOSE-LA Mini-Conference at Loyola Marymount on Saturday, March 16, 2013, included a panel discussion on Agile Systems Engineering with Dr. Barry Boehm of USC, Daniel Allard of JPL, and Kent Palmer, consultant, with Phyllis Marbach of Boeing facilitating. Each panelist started with a brief introduction of his or her experience with Agile Systems Engineering. Dr. Boehm presented information about estimating an Agile Development effort using CORADMO (Constructive Rapid Application Development Model). He showed estimated improvements and actual improvements from a couple of cases and gave explanations for those cases where improvements were not realized.

Mr. Allard presented “Adaptation of the Agile Scrum Methodology for the Implementation of Multi-Mission Relay Coordination Software (MaROS).” The adaptation of Scrum to work within the mandated institutional waterfall process for this mission-critical software has been particularly challenging, with certain aspects of Scrum modified or abandoned, with varying degrees of success. The presentation included the MaROS adaptation of Scrum and the lessons learned in the adaptation process. The team velocity and work flow was described. Daily meetings were conducted virtually most days, but release planning and sprint planning meetings were held in person. Many of the team members work part time on this effort; using Agile helps enable transparency of the work, and short sprints help keep the work on progress.

Mr. Palmer described Dean Leffingwell’s Scaled Agile Framework (SAFe; available online at <http://scaledagileframework.com/>). SAFe appears to be the utopian vision of choice for organizations that are attempting to adapt their organizations to Agile. The inability of command and control structures to keep up with the cadence of development teams is pushing organizations toward a large-scale Agile transformation.

Ms. Marbach presented a case study of an Agile software development effort and what role systems engineering had in

the program for managing requirements, performing software testing, and delivering contract documents associated with the software deliveries. Charts from these presentations are available on the INCOSE-LA Mini-Conference site at <http://www.incose-la.org/events/conferences/mini-conference-2013/technical-program.html>

One way for systems engineers to be involved in using the Agile practices is by being a member of an Agile Software Development Team. Dr. Boehm remarked that you can have several teams using the Agile Process and those teams may coordinate at a Scrum of Scrums meeting, but he has seen a limit to how far you can scale up Agile. Two levels where up to ten teams coordinate may work well, but three levels where more than one hundred people need to stay coordinated hasn’t succeeded. Mr. Palmer mentioned that some think Agile is the software communities’ reaction to CMMI (Capability Maturity Model Integration) to avoid following those practices. One person remarked that teams can implement quality assurance where all are responsible. Another suggested that this might be problematic because there are a lot of institutional assessors.

A question to Mr. Allard involved managing cost. He stated that the work of the Jet Propulsion Laboratory on a given project is cost limited, and if they use all their budget, then they stop until more is allocated to continue the work. Another question asked how evidence was provided to show that requirements have been fully tested and verified. It is possible to trace requirements to testing using a prioritized backlog. Also, a program can do some Agile and some plan-driven development.

Questions pertaining to team locations revealed that some teams are co-located, but others are distributed and work effectively together. Some international companies, including a medical company and UC Irvine, have invested heavily in collaboration tools for distributed teams. The cultural change was discussed and all agreed that not everyone works well on an Agile Team and sometimes staffing needs to be adjusted.

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*(Continued from page 8)*

objectives. Although a company may want to be known for innovation (or ingenuity), affordability, quality, speed, and flexibility, it can only demonstrate two or three of these capabilities in one process at best. However, a company can demonstrate each and every one of these capabilities separately using different processes to meet the expectations of a diverse clientele.

Dr. Hefner closed by explaining the five steps to introducing change effectively:

1. Communicate
2. Ask, Don’t Tell
3. Involve People
4. Pilot
5. Invite Them to Try It

With that he also addressed the challenges of getting others to accept change, such as their tendency to resist and the reasons they do so, different societal groups’ responsiveness to change, and the individual’s response cycle.

Besides the exceptional tutorial, the breakfast and lunch were sumptuous and the venue was choice, especially for such an inexpensive registration fee (only \$45!). The participants primarily came from aerospace backgrounds in corporations and agencies such as Northrop Grumman, Boeing, NASA, and Raytheon. The experience and insight they contributed to the meeting were, by themselves, more than worth the registration. I definitely would like to become more involved in this professional society and look forward to building relationships and developing as an engineer here.

(Continued from page 1)

change. The growing need for systems engineering was illustrated by the growing complexity, which leads to increasing critical interface control and integration. The General posed a hypothetical question, “Does the sensor built by Northrop work with the bus built by The Boeing Company?” (More on that later.)

The General repeated an often-heard comment: “Oh, we should have caught that,” and noted that an occasional follow-on comment is, “It’s not a failure, it’s a feature.”

One of the new perspectives is to try to determine if a new satellite is necessary—space is getting crowded—or could the functionality of existing satellites be used to accomplish the mission. Could a satellite design to detect the infrared signature of a rocket launch be used to provide weather data? The answer is that it could; however, how would this be done without betraying the sensitivity of the launch-detection sensors?

“Stove pipes,” both functionally and organizationally, are a part of the challenge and further illuminate the need for systems engineers and “systems of systems” thinking. The General noted one change in the generally held views of how to build a satellite and how to design missions in that systems engineering concepts being talked about “used to be heresy.”

The General challenged the audience and what might be deemed traditional systems engineering by observing that “‘systems of systems’ is really architecting,” and with a challenge to start thinking in terms of “mission areas leads.”

As a result of shifting government priorities and of consequential changes in budgets, dollars for satellite and launch vehicles are shrinking. Now there is a drive to do something different. Describing part of the challenge, the General quoted the cartoon character Pogo, “We have met the enemy, and he is us.”

The General discussed some of the other challenges that are becoming increasingly significant, such as cyber security. And again he made the point that systems engineering and systems of systems thinking is essential to success—to successfully weaving things together. Mission area leads (MAL) need to look at lots of stuff. There is the classic “SWAP” (a satellite’s size, weight, and power), plus the changes in technology. One example the General cited was the “bus:” a “bus is a satellite that has size, weight, and power: it carries boxes.” Some of the concepts are more daunting, such as resilience, which is occasionally explained by saying, “we’ll know it when we see it.” Disaggregation is another part of the challenge. Systems engineers responsible for a set of new satellites, for example, would have the various interested parties buy a set of satellites: the Department of Defense might buy twenty-four and a contractor might buy three, thereby sharing the cost and allowing both entities to use all twenty-seven satellites. The “downside” to such a hypothetical arrangement is finding a way to do so that is in compliance with Federal Acquisition Regulations. Combined with the ongoing space modernization initiatives, increasingly it is the case that we need to do systems engineering really, really well.

In addressing another aspect of the challenges facing the systems engineering community, the General noted that “part of the problem is that we are not very good story tellers.” [the General proved to be an able exception –Ed.]

The evening concluded with the traditional opportunity for questions and answers. The General’s pithy and occasionally wryly humorous presentation was well received and thoroughly enjoyed by those in attendance as they left with an appreciation for the challenges and mechanization of the systems engineering process in outer space as well as a few lessons learned.

2013 Board of Directors					
<b>Elected Officers</b>			<b>Elected At-large Directors</b>		
President	Eric Belle	eric.belle@incose.org	Membership	Sam Bertic	sbertic@vitechcorp.com
Vice-President	Michael Wallace	m.wallace@ngc.com	Programs	Shirley Tseng	shirleytseng@earthlink.net
Past President	John Silvas	silvas_john@bah.com	Systems Engineering Education		
Secretary	Paul Cudney	paul.cudney@incose.org	Ways and Means	Michael Maar	michael.maar@incose.org
Treasurer	Harvey Soldan	harvey.soldan@jpl.nasa.gov	Communications	DeAnna Regalbutto	deanna.regalbutto@verizon.net
<b>Appointed Positions</b>					
Newsletter Editor	Jorg Largent	jorg.largent@incose.org	Student Division Ambassador	Michael Kim	michael.kim@jhuapl.edu
Technical Society Liaison	Shirley Tseng	shirleytseng@earthlink.net	Reflector Manager	Susan Ruth	susan.c.ruth@aero.org
Chapter Recognition Manager	OPEN		Industrial Relations Manager	Jose Garcia Jr.	jose.s.garcia-jr@boeing.com
Professional Networking Chair	Scott Birtalan	scott.birtalan@ngc.com	Website Technical Manager	OPEN	
2013 Mini-Conference Chair	Harvey Soldan	harvey.soldan@jpl.nasa.gov	Lead Site Coordinator	OPEN	
2013 Mini-Conference Program Chair	Richard Emerson	remerson9@gmail.com	Representative to the SF Valley Engineer’s Council	Stephen Guine	Stephen.Guine@ngc.com

## INCOSE-LA Chapter NEWSLETTER

Vol. 11: Issue No. 4 August – September 2013

**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](http://www.incose.org)) to update your information.

Name	Title	Company or Organization
Nirav B Shah	Research Affiliate	Massachusetts Institute of Technology
Durrell L Stipp	Program Manager FCS/FBW	Gulfstream Aerospace Corp
Steve Nagengast	Engineering Manager	AeroVironment, Inc.
Dmitry A Altshuller	Technical Specialist	Dassault Systemes
Valmere L Kasala	Quality Engineer & Auditor	VLK Quality Management Systems
Shireen El-Alayli	Senior Systems Engineer	PAC
Keith F Heinzig	VP Engineering	Secure Communication Systems
Thomas (Tommy) Nix	Major/ GPS Systems Engineering Requirements Chief	USAF
Tyler R MacBroom		
Kevin M Nastasi	MILSATCOM Architecture & Interoperability Branch Chief	United States Air Force
Dana M Haney	Principal Systems Engineer	
Chyrl Yeatts	Systems Engineer	Aerojet Rocketdyne
Fuyuan S Chang	Senior Staff Engineer	Moog Inc
Ben B Hong	Systems Engineer	Moog Inc
Edward Ed Wong	Senior Member of Technical Staff	Moog Inc.
Feng-Ger Feng Yu	Systems Engineer	Northrop Grumman
Wajih Daab	Student	University of Southern California



A view from the International Symposium Mentor Challenge in Philadelphia: Mentors Eric Belle (left), President of the Los Angeles Chapter, and Jorg R. Largent, Editor of the *Newsletter*, with "mentees" Dee-Giam Hong and Sungtan Kim of Korea.

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

**\*Stay Connected\***  
Get the latest on INCOSE-LA happenings in the Reflector e-mails  
If you wish to be placed on our e-mail distribution, contact Susan Ruth at [susan.c.ruth@aero.org](mailto:susan.c.ruth@aero.org)

# INCOSE-LA Chapter NEWSLETTER

Vol. 11: Issue No. 4 August – September 2013

Return Address:

**PO Box 10969  
Westminster, CA 92685-0969**

## 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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## UPCOMING EVENTS

### Complex Aerospace Systems Exchange (CASE) at AIAA Aviation and Aeronautics Forum

Dates: August 12 – 14, 2013

Where: Hyatt Regency Century Plaza, Los Angeles, CA

Visit <https://www.aiaa.org/aviation2013/> for additional details

### Speaker Meeting

“Human Centered Model Driven Architecting and Engineering”

Speaker: Douglas Orellana, USC Systems Architecting and  
Engineering Doctorate Student

Date: Tuesday, August 13, 2013

Time: 5:30 p.m. – 7:45 p.m.

Where: Aerospace Corporation in El Segundo

Cost: Free for members; \$10.00 for non-members

Look for details in a Reflector Notice or online at

<http://www.incose-la.org>

### Networking Event

Date: Wednesday, September 18, 2013

Time: 5:30 p.m. – 8:00 p.m.

Where: Lido Di Manhattan Ristorante & Bar (Bar Area)

Address: 1550 Rosecrans Ave., Manhattan Beach, CA 90266

Phone: 310-536-0730

Look for details in a Reflector Notice or online at

<http://www.incose-la.org>

### Networking Event

Date: Wednesday, November 20, 2013

Time: 5:30 p.m. – 8:00 p.m.

Where: In the Long Beach and Orange County area

Cost: Free

Look for details in October, either a Reflector Notice or online at

<http://www.incose-la.org>

### INCOSE-LA Holiday Party

Date: December 2013

Where: TBD

Look for details in October, either a Reflector Notice or online at

<http://www.incose-la.org>

### 2014 Conference on Systems Engineering Research (CSER)

Dates: May 20 – 22, 2014

Where: Crowne Plaza Hotel, Redondo Beach CA

*International Workshop 2014*

*January 25 to 28, 2014*

*To be held in the Los Angeles area*

*Details available in October*

For more details on Chapter-sponsored events  
and registration, go to

<http://www.incose-la.org>