

NEWSLETTER



2014-15



2015



**2008, 2012
President's Award
for Most
Outstanding
Chapter**



Fourth Quarter Strategic Planning Meeting

- Vice-president Phyllis Marbach opened with a warm welcome, and then discussed the agenda for the meeting:
- 2016 Accomplishments and Year at a Glance
 - Financial Report and 2017 Budget
 - Ambassador Training
 - Committee Reports
 - Programs
 - Communications
 - Education (Magorno)
 - Membership (TenEyck)
 - Ways and Means (Cudney)
 - Awards (Belle)
 - 5 year Strategy Planning
 - Action Item Review

As is often the case with interdependent activities, the discussions covered a variety of topics related to each agenda item.
(See "Fourth SPM," on page 8)

Ooops! Election Correction

The Election Special Edition was in error regarding the timing of electing new officers. The nomination process continued through November. If you are interested in serving or would like to nominate someone to serve on the Board of Directors, please contact Stephen Guine at Stephen.guine@ngc.com. Voting will continue through December. The *Newsletter* regrets the error.

CSER 2017: It's Coming! March 23 — 25, 2017

The Conference on Systems Engineering Research (CSER) leadership team is working on the preparations for the conference, with the call for papers, paper submittals, and the formation of sub-teams to attend to the many details. One team that needs to come together quickly is the team of paper reviewers. Chairmen and women for the panels are being contacted. INCOSE-LA representatives have been meeting with the Crowne Plaza Redondo Beach and Marina, the venue for CSER 2017. All in all, CSER 2017 is shaping up to be another excellent conference in keeping with past conferences hosted by the University of Southern California (USC) and the Los Angeles Chapter of INCOSE.

- CSER 2017 is an excellent opportunity for career enhancement:
- Write a paper; join the discussion of the latest concepts; take the lead (note call for papers deadline is November 1, 2016).
 - Facilitate the conference by participating in technical reviews, venue coordination, publicity, et al; the opportunities are innumerable.
 - Attend the conference for networking and learning opportunities on the world stage.

(See "CSER 2017," on page 4)

84 papers submitted and under review!

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September Speaker Meeting Growing Agile Challenges and New Horizons

By Dr. Rick Hefner

Dr. Suzette Johnson provided the September INCOSE-LA Meeting with a summary of the current challenges and direction in agile engineering. Dr. Johnson, who leads Northrop Grumman's Agile Center of Excellence, is a Certified Enterprise Coach and Scaled Agile Program Consultant. She described Agile as an adaptive, responsive, evolving, and continuously improving empirical process, which provides improved transparency of progress and reduces time-to-deploy operational capability. Release of the Scale Agile Framework (SAFe®) Version 4 had provided new content and guidance to help enterprises better organize around value delivery, develop systems that include hardware and software, and improve development, coordination, and delivery across the entire value stream.

The ability for organizations to inspect and adapt to the changing needs of customers is paramount for survival in a world of increasing complexity and technological change. Organizations seek to employ principles and practices that can help manage these changes while focusing on regular demonstrations and delivery of value in short time-boxed cycles. Over the past several years there has been increasing adoption of Agile and scaling across large programs and systems development efforts. With this scaling, organizations begin to experience challenges around the increased need for systems engineering and larger integration and test environments. These challenges impact an organization's structure and the working relations across the entire value stream from customer and supplier relationships to product delivery.

In the new Agile environment, systems engineers help define and communicate the big picture, by emphasizing a modular architecture with well-defined interfaces. They are part of the Cross-Functional Team, with regular collaboration at the team level and across the teams to provide the end-to-end systems view. Large scale integration and test becomes part of the Release Planning Event to coordinate and align activities, and ensure regular integration of components and subsystems through system-level demonstrations.

Suzette closed by describing the use of Model-Based Systems Engineering as part of an Agile modeling approach, to better understand iteration work items (sometimes referred to as "model storming".) Everyone walked away with a better perspective on how Agile techniques are impacting systems engineering.

October Speaker Meeting Improve Your Listening Skills

George Cassar from Dale Carnegie of Southern Los Angeles was the speaker at the INCOSE-LA October 11, 2016 Speaker Meeting. George, members and guests gathered at Aerospace to enjoy a light dinner and networking before his talk. Remote sites included Azusa (Northrop Grumman), Goleta and Southern Arizona Chapter. Phyllis Marbach, Vice-president, opened the evening with a welcome to new members and information about upcoming events. Rick Hefner, Programs Director, introduced our speaker.

George Cassar has a real passion for developing people across all ages to achieve their life's dreams and goals. George was at Raytheon for 28 years, working as a systems engineer in developing tactical radio systems for the United States Army and Marine Corps. He also worked on training and development in the systems engineering and engineering organizations at the Space Airborne Systems Division.

In 2014, George transitioned from Raytheon to Dale Carnegie of Southern Los Angeles. He provides business performance consulting and training to organizations in the art of "Winning Friends and Influencing People" to ensure a highly engaged workforce. George is also the President of a non-profit educational resource center for young men near UCLA, responsible for directing leadership programs in Southern California for high-school, college, and young professionals, and their families. He has a bachelor's and a master's in electrical engineering from Loyola Marymount University.

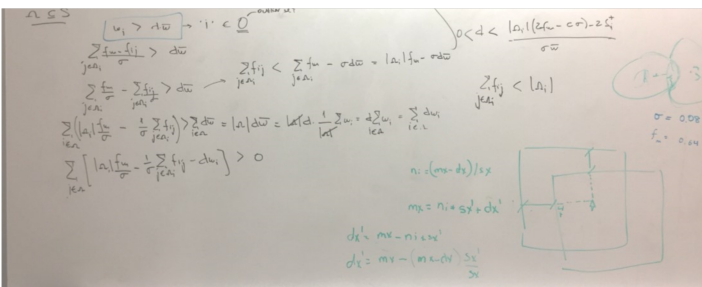
HEAR DE! HEAR DE!

Listening Well Can be Good for You

George's talk provided information about how to assess our listening skills and how to work to overcome listening filters. We learned how to apply effective approaches to deal with different types of listeners and how to engage others by asking factual, causative and values-based questions. Barriers to listening include internal filters such as multi-tasking, lack of focus, and expectations as well as external filters such as distractions from the temperature and outside noises. To listen well we need to "Be Intentionally Fully Present" and avoid filtering out the message. We took a self-assessment to determine what type of listener each of us is: improvement needed, an occasional listener, a convenient listener, a listener as top priority, or a skilled listener.

Levels of listening were described, including: ignore, pretend, selectively, attentively and empathetically. Listening Principles and body language were covered for listeners to learn how to encourage speakers in a positive way. Many types of listeners exist: Preoccupieds, Out-to-Lunchers, Interrupters, Combatives, Analysts and Engagers. We learned how to recognize the different types and how to effectively interact with them. If we identified ourselves as one of these types we learned ways to improve our own behavior to become a more effective communicator and listener.

(See "October Speaker Meeting" continued on page 8)



Caltech graffiti

November Speaker Meeting Systems Engineering in the 21st. Century

By Phyllis Marback

The November speaker meeting was hosted by the University of Southern California (USC) and featured Dr. Azad Madni. Dr. Madni's presentation was titled "Trends, Opportunities, and Need for a New Mindset." Dr. Madni described 21st Century Challenges such as increasing system complexity, increasing interdependencies across systems, the greater variety of human roles, the unprecedented rate of technology advances, and the unexpected consequences that can occur.

Dr. Madni described 21st Century terminology as a challenge. "Augmented reality," one example, is the overlay of computer graphics onto a real-time event, such as the ten-yard lines drawn onto a televised image of a football game. Engineering teams in the 21st century will need to master the terminology.

Complex System Drivers must be considered in developing 21st Century systems such as hyper-connectivity and the Internet of Things (IoT); system complexity, scope, scale and cost. In addition, systems engineers will need to consider system flexibility and adaptability requirements and will need to be aware of uncertainties in global politics, the environment and technologies, all the while integrating humans with adaptable systems. To effectively address these challenges, systems engineering is in the midst of a transformation. This transformation is enabled by models.

Modeling is useful to those who understand the problem and domain *[without that understanding a project is at risk of failure Ed.]*. Models help organize knowledge, facilitate communication among collaborative teams, and provide visualization. Further, models can be analyzed, can be used to analyze different perspectives, and those different perspectives might provide new insights. However, models have notation that might not be understood by all the stakeholders.

Dr. Madni then stated that models are necessary but not sufficient, and proposed a strategy: stories. Stories help bridge the models and provide user experience. Stories also contextualize knowledge.

Dr. Madni advised that systems engineers should think differently about thinking. When systems engineers "think about thinking," they need to think holistically, laterally and visually. Part of the "thinking" involves due consideration of human beings in that they are assets with unique capabilities and limitations.

Dr. Madni again noted the usefulness of models: they help the systems engineers (and their projects) organize, collaborate and gain insights. Stories have a complementing utility: they help contextualize, explore, inform, educate and persuade. Additionally, in addressing trade-offs, stories enable systems engineers to explore the tradespace and iterate different solutions. Dr. Madni included a caution that, as a part of the consideration of change propagation, the systems engineer should remember that system changes might impact across a larger enterprise.

(See "November Speaker Meeting" Meeting on page 10)

You are invited to the INCOSE-LA Chapter Holiday Party!

**Sunday evening, 6:00 p.m.
December 11, 2016**

**Location same as last year,
at the elegant
Del Rey Yacht Club,
13900 Palawan Way
Marina Del Rey**

**Free for members — a nominal charge for
guests and non-members
Great people * Fine food * Lots of Fun
White Elephant Gift Exchange**

An INCOSE-LA Tradition!

Registration Required!

Go to the INCOSE-LA Constantcontact page:

[http://events.r20.constantcontact.com/register/
event?oeidk=a07ed9r6cbrab87dc7a&llr=l4ihvgeab](http://events.r20.constantcontact.com/register/event?oeidk=a07ed9r6cbrab87dc7a&llr=l4ihvgeab)

To register and for more details.
Registration closes December 4, 2016
and attendance is limited to the first 60 registrants.



Read about on-going systems engineering discussions at the INCOSE LinkedIn
webpage: <https://www.linkedin.com/groups/7499834>

Historical Trivia – One proposed etymology of "Brownie Points" According to the Baltimore and Ohio Railroad Museum, "brownies" were, originally demerits. The system is traced back to George R. Brown, who, in 1885, was the general superintendent of the Fall Brook Railway (which became part of the New York Central Railroad). He thought the then current practice of suspending men for breaking rules was unfair to their families and substituted a system of demerit marks. Too many demerits in a given period resulted in dismissal. The Brown system, with many variations, has been widely by the railroad industry. A superintendent's private car is called a brownie box or brownie wagon.

(CSER 2017, continued from page 1)

CSER 2017 will be more than excellent papers, knowledgeable and erudite speakers, and a top-notch venue. The success of conferences and symposia such as this is tied to the sponsors who support the conference, and Dick Emerson and his team are well on their way to signing up a stellar group of sponsors such as sponsored the CSER 2014 and the 2016 Regional Mini-Conference.

The team met with representatives of the Crowne Plaza Redondo Beach and Marina, the venue for CSER 2017. The Crowne Plaza was the venue for CSER in 2014, and the Crowne Plaza and INCOSE-LA are hard at work on the arrangements, including:

- Audio/visual
- Menu selections for Thursday, Friday, and Saturday
- Facilities layout for key note presentations, tutorials, paper sessions, banquet, support functions, registration, and sponsors and exhibitors
- Ancillary activities such as parking, rooms, and socials

CSER 2017 offers researchers in academia, industry, and government a common forum to present, discuss, and influence systems engineering research. It provides access to forward-looking research from across the globe, by renowned academicians as well as perspectives from senior industry and government representatives. Co-founded by the University of Southern California and the Stevens Institute of Technology in 2003, CSER has become the preeminent event for researchers in systems engineering across the globe.

The theme for CSER 2017 is, “Disciplinary Convergence: Implications for Systems Engineering Research,” and serves as a spring board for papers and discussions across the spectrum of challenges facing the discipline in both the world of academia and the world of the practitioner.

(See “CSER Papers” on page 5)

Are There Too Many of Us?

Dr. Vivek Wadhwa is Distinguished Fellow and professor at Carnegie Mellon University Engineering at Silicon Valley and a director of research at Center for Entrepreneurship and Research Commercialization at Duke. His past appointments include Stanford Law School, the University of California, Berkeley, Harvard Law School, and Emory University.

The following is an excerpt from an article by Dr. Wadhwa, published in the Washington Post September 1, 2011:

Then there is the question of whether there is a shortage of engineers in the United States. Salaries are the best indicator of shortages. In most engineering professions, salaries have not increased more than inflation over the past two decades. But in some specialized fields of software engineering in Silicon Valley and in professions such as petroleum engineering, there have been huge spikes. The short answer is that there are shortages in specific fields and in specific regions, but not overall. Graduating more of the wrong types of engineers is likely to increase unemployment rather than create jobs.

The U.S. does, however, have a problem: Some of its best engineers are not doing engineering, and some of its best potential engineers are not even studying engineering, leaving us short-changed in solving the important problems of the day.

Most American children just aren’t interested in studying engineering. As a result, nearly 54 percent of our PhDs in engineering and 42 percent of our master’s degrees go to foreign nationals. So, even if we increase U.S. university enrollments, the majority of these students will benefit our global competitors.

And, sadly, our top engineering graduates don’t always become engineers. They move into finance or management consulting — both of which pay far higher salaries than engineering.

(See “Too Many” Meeting on page 10)



The Crowne Plaza Redondo Beach and Marina, venue for CSER 2017

(CSER Papers, continued from page 4)

With this theme as a backdrop, over 80 papers have been submitted on the following topics:

- Formal Methods in Systems Engineering
- Resilience and Affordability
- Model-Based Systems Engineering
- Systems and SoS Integration
- System Architecture and Complexity
- Trade-space Visualization and Analysis
- Cognitive Systems Engineering
- Cyber secure resilient systems
- Lean and Agile Systems Engineering
- Cyber-Physical Systems and Internet of Things
- Systems Thinking and Complexity Management
- Infusion of System Science into Systems Engineering
- Uncertainty Quantification
- Smart Manufacturing
- Advancing Systems Engineering Education
- Systems Engineering and Decision Science

In addition to this wide selection of topics looking to the future of systems engineering, CSER 2017 features a full slate of luminaries from academia, government, and industry as keynote speakers and panelist.

CSER 2017 is looking forward to a stellar cadre of keynote speakers.

Dr. Yannis C. Yortsos has served as Dean of the USC Viterbi School of Engineering since June 2005. He is the Chester F. Dolley Professor of Chemical and Petroleum Engineering, and holds the Zohrab A. Kaprielian Dean's Chair in Engineering. Dr. Yortsos is well known for his work on fluid flow, transport and reaction processes in porous and fractured media with applications to the recovery of subsurface fluids and soil remediation. He has been actively involved in the peer review of the Yucca Mountain Project for the disposal of high-level radioactive waste.

Interested in participating in this world class event?
Get in touch with terry.rector@aero.org.
Please have in mind what you would like to do.
All positions are open at this early stage.



The neighborhood around the Crowne Plaza

Dr. Greg Hyslop is the chief technology officer of The Boeing Company and senior vice-president of Boeing Engineering, Test & Technology. Dr. Hyslop oversees the development and implementation of the enterprise technology investment strategy, and his portfolio of responsibilities includes the companywide Boeing Engineering function; Boeing Research & Technology, the company's advanced central research and development organization; and Boeing Test & Evaluation, the team that verifies and validates Boeing's commercial and defense products.

Ms. Kristen J. Baldwin is the Principal Deputy to the Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)). Ms. Baldwin acts on behalf of the DASD and is responsible for engineering and technical workforce, policy, and systems engineering planning for major defense acquisition programs. Her oversight includes concept engineering and analysis, design, development and manufacturing, and independent program review and assessment. She supports the DASD role of functional leader for more than 40,000 defense acquisition professionals in the Department of Defense (DoD) Engineering and Production, Quality, and Manufacturing workforce. She oversees the DoD strategy for Trusted Systems Design.

Dr. Paul D. Nielsen is Director and Chief Executive Officer of the SEI, a global leader in advancing software and cybersecurity to solve the nation's toughest problems through focused research, development, and transition to the broad software engineering community.

The SEI is a key innovator in areas central to the U.S. Department of Defense and civilian government operation in the cyberspace domain, including software architecture, software product lines, interoperability, the integration of software-intensive systems, network and system resilience, and the increasing overlap of software and systems engineering. The SEI also provides direct support to more than 50 U.S. government entities in their efforts to efficiently and effectively acquire and sustain new software and systems.

Integrated with the USC team of faculty, staff, and students is the Los Angeles Chapter of INCOSE. Continuing a long-standing role of facilitation with USC and fresh off the highly successful Regional Mini-Conference, INCOSE-LA is working on coordinating the venue, support logistics, sponsors, and exhibitors.

The team has started contacting potential sponsors and exhibitors, and our overtures are being well received. Attendees can expect another superb selection of industry and academic leaders as sponsors and exhibitors.



INCOSE-LA Chapter NEWSLETTER

Vol. 14: Issue 7, December 2016 – January 2017



REQUIREMENTS ANALYSIS & SPECIFICATION WRITING

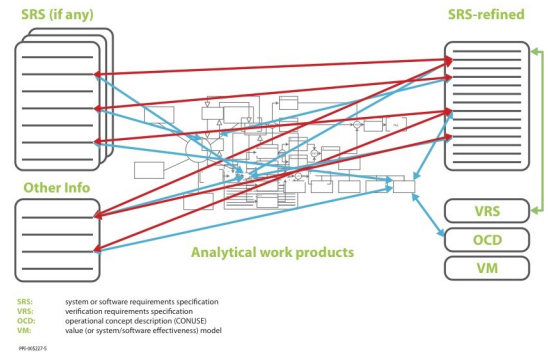
FIVE DAY COURSE



Requirements Analysis and Specification Writing are sciences practiced by many, mastered by surprisingly few. And yet, the payoff from achieving excellence in these areas is large. The two aspects, Requirements Analysis and Specification Writing, are treated as separate but related topics, each in a course of three and two days' duration.

2017 COURSE DELIVERIES

| | |
|-----------------------|-------------------------|
| Boston, MA | 13 - 17 March |
| Las Vegas, NV | 24 - 28 April |
| Washington, DC | 21 - 25 August |
| Las Vegas, NV | 13 - 17 November |



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“ Thanks again for the best preparation course. Thanks to you, I felt really comfortable in studying the handbook and finally taking the exam. - delegate ”

2017 5-DAY COURSE SCHEDULE

| | |
|-----------------|-----------------|
| LAUREL, MD | FEB 6 - FEB 10 |
| LAS VEGAS, NV | FEB 27 - MAR 3 |
| CHICAGO, IL | MAR 13 - MAR 17 |
| ALBUQUERQUE, NM | APR 24 - APR 28 |
| DENVER, CO | MAY 8 - MAY 12 |
| ORLANDO, FL | MAY 22 - MAY 26 |
| BALTIMORE, MD | JUN 12 - JUN 16 |
| LOS ANGELES, CA | JUN 26 - JUN 30 |
| AUSTIN, TX | AUG 14 - AUG 18 |
| DETROIT, MI | SEP 25 - SEP 29 |
| LAS VEGAS, NV | OCT 30 - NOV 3 |
| CHANTILLY, VA | NOV 13 - NOV 17 |

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CSEP PREPARATION 5-DAY COURSE

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15th Annual Conference on Systems Engineering Research (CSER)

March 23 - 25, 2017, Crowne Plaza Hotel, Redondo Beach, CA

Disciplinary Convergence: Implications for Systems Engineering Research

Conference General Co-Chairs, USC



Prof. Azad M. Madni
Systems Architecting
and Engineering



Prof. Barry Boehm
Systems and Software
Engineering

Technical Program Co-Chairs, USC



Prof. Roger Ghanem
Mechanical
Engineering



Prof. Daniel Erwin
Aeronautical
Engineering

Research Paper Topics

- Formal Methods in Systems Engineering
- Resilience and Affordability
- Model Based Systems Engineering
- Systems and SoS Integration
- System Architecture and Complexity
- Trade-space Visualization and Analysis
- Cognitive Systems Engineering
- Cyber Secure Resilient Systems
- Lean and Agile Systems Engineering
- Cyber-Physical Systems and Internet of Things
- Systems Thinking and Complexity Management
- Infusion of System Science in SE
- Uncertainty Quantification
- Smart Manufacturing
- Advancing Systems Engineering Education
- Systems Engineering and Decision Science
- Wireless Health

Application Areas

- Autonomous Vehicle Networks
- Defense Systems and System-of-Systems
- Space and Aerospace Systems
- Financial Systems
- Global Supply Chains
- Healthcare Delivery
- Homeland Security
- Smart Manufacturing
- Medical Devices
- Sustainable Energy
- Transportation Systems
- Urban Systems and Infrastructure

Venue

- Crowne Plaza Hotel
300 N Harbor Dr, Redondo Beach, CA 90277

Conference on Systems Engineering Research (CSER) offers researchers in academia, industry, and government a common forum to present, discuss, and influence systems engineering research. It provides access to forward-looking research from across the globe, by renowned academicians as well as perspectives from senior industry and government representatives. Co-founded by University of Southern California and Stevens Institute of Technology in 2003, CSER has become the preeminent event for researchers in systems engineering across the globe

Important Dates

- **November, 2016: REGISTRATION OPEN**
- **December 15, 2016:** Notification to authors
- **February 1, 2017:** Final Conference Papers due

Conference Website

<http://viterbi.usc.edu/sae/cser2017.htm>

Conference Co-Managers



Mr. Terry Rector
The Aerospace Corp.



Ms. Marilee Wheaton
The Aerospace Corp.



For Sponsorship/Exhibitor information contact Richard Emerson, remerson9@gmail.com

(Fourth SPM, continued from page 1)

Vice-president Marbach reviewed the Chapter's accomplishments to date: The review of the Chapter's year-to-date accomplishments noted several. One of note was the Regional Mini-conference held on April 9 and 10. This conference was co-hosted by the San Francisco Bay Area Chapter, the San Diego Chapter, the Southern Arizona Chapter and the Central Arizona Chapter. The University of Southern California, the Loyola Marymount University, and the University of Arizona student divisions. The student division from the United States Air Force Academy was an enthusiastic participant.

Other activities noted were the several tutorials and speaker meetings conducted throughout the year. Topics for the speaker meetings covered a spectrum of areas of interest to the practicing systems engineer, from "Networking for Engineers" and "Big Data" to the "Agile State of Practice" and improving listening skills. The Chapter also hosted networking events throughout the area, including one to support the Ground Systems Architecture Workshop.

Treasurer Harvey Soldan presented the budget and year-to-date expenses plus a proposed budget for 2017. The proposed 2017 budget needs to be reviewed by the respective directors and approved by the Board of Directors. Past-president Stephen Guine brought up the concept that monies budgeted, but not spent, might represent value to the members that we have not been providing.

Stephen's wonderment led to a variety of discussion regarding some changes regarding how the Chapter might better serve the membership. One consideration is a change in the type of venue for the town hall meeting. While the town hall meeting is still planned for January 10, 2017 and is still intended as an opportunity to meet the new officers, the Board is considering a location that might be more conducive to socializing. Some of the other topics discussed included the bylaws and the associated responsibilities.

Ideas to increase income were discussed, including selling more advertising in the newsletter and increasing the cost of the newsletter advertising. Another concept was to invite vendors to attend Chapter events so they could present their products and cover the expenses of the event.

Director of Communications Dr. Lin Yi reviewed the products being used by the Chapter. These include Facebook and LinkedIn, maintained by Doris Gebelein, Reflector Notices, now being processed by Deborah Cannon, registration for Chapter-hosted events, set up by Paul Cudney, the *Newsletter*, produced by Jorg Largent and Collette Kurtz — with inputs from members of the Chapter — and "Meetup," coordinated by Dr. Yi himself. Of special note is the INCOSE-LA webpage, maintained by Neil Wigner.

It was suggested we should survey the membership on what types of newsletter articles they would like to see. It was suggested we include systems engineering topics in addition to the meeting notices and reports.

Director of Membership Mark TenEyck led a discussion of how we can serve as ambassadors, leveraging off of a presentation presented to the Chicago chapter. The intent of the ambassador program is twofold. One intent is to help individuals and organizations better understand the science and value-added of systems engineering. The other is to reach out to people working in systems engineering jobs to better appreciate the value of INCOSE-LA and the services the Chapter provides.

Tony Magorno, Director of Systems Engineering Education, discussed planning four events during 2017. One or more CSER tutorials, a CSEP prep class, an MBSE class and an Agile and 6 Hats workshop.

Past-president Eric Belle informed the group that our chapter has two annual awards, the President's Award and the Susan Ruth award. In addition, the chapter presents recognition gifts to speakers. We have enough gifts and awards to last through the end of 2017. Volunteers' supervisors should also be sent a letter of recognition and gratitude from INCOSE-LA periodically

The meeting concluded with a review of the Chapter's mission and vision, and with a discussion of plans and activities for 2017.

INCOSE is the world's authority on systems engineering.
INCOSE President Alan Harding

(October Speaker Meeting, continued from page 2)

George provided a workbook about listening and it states that British Telecom's Tom Boyle claimed that the "networking quotient" or NQ is more important than the IQ or "intelligence quotient" in developing success. Asking effective questions when networking is an important way to establish a rapport with people. Factual questions such as "What do you do for a living?" and causative questions such as "Why did you come to California?" help people learn more about each other. Values-based questions such as "Tell me about a person that had a major impact in your life." creates a deeper understanding of others. Listening well and being fully present when working with others will help in all areas of systems engineering.

The opposite of complexity is clarity, not simplicity.
Peter Tuddenham

C'est toujours la même chanson.
Le vieux proverbe français.

"Reasonable people adapt themselves to the world.
Unreasonable people attempt to adapt the world to themselves.
All progress, therefore, depends on unreasonable people."
George Bernard Shaw

Not a member? Join INCOSE!

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

INCOSE-LA Chapter NEWSLETTER

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Photo Shop

The top two pictures are of the Fourth Quarter Strategic Planning Meeting held at Caltech. The picture in the middle on the left is of Dr. Madni, Phillis Marbach, and Doris Gebelein (and two future systems engineers) at the November speaker meeting, held at the University of Southern California. The picture immediately above is of Dr. Hefmer as he introduced Dr. Madni at the November speaker meeting. The picture to the immediate left is of the attendees of the October speaker meeting, held at The Aerospace Corporation in El Segundo.

Not a member? Join INCOSE!

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

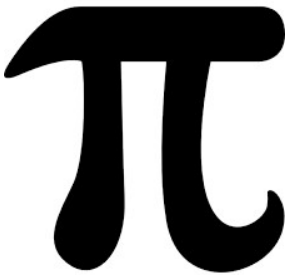
INCOSE-LA Chapter NEWSLETTER

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(November Speaker Meeting, continued from page 3)

Dr. Madni then discussed some of the “how to.” In order to exploit this new mindset systems engineers should start with questions rather than models. The systems engineers should start by framing the problem, understand and explain the underlying phenomenon, resolve incompatibilities among models, exploit analogies and metaphors to conquer complexity. We must exploit disciplinary convergence to foster innovation, generate insight and solve difficult problems.

A few new perspectives were recommended. Instead of being just electromechanical or software-intensive, a systems engineer should consider other aspects, particularly cyber-physical systems. Instead of starting with pre-defined interfaces consider on-demand integration. Engineering trends that are emerging include moving from process recipes to explainable trade-offs; moving from functional design to elegant design; moving from empirical testing to formal methods-based testing; and moving from a multidisciplinary approach to a transdisciplinary approach enabled by convergence. Approaches and insights from distinct fields provides convergence-fusion. This transdisciplinary approach will shed new perspectives and new light on the problem space. This addresses the need to dissolve boundaries between the disciplines.



Some recommend that systems engineers be “T-shaped”, deep knowledge in at least one area and broad knowledge across multiple areas. Dr. Madni suggested that systems engineers need to be more “Pi-shaped.” Broad systems engineering knowledge across the horizontal with a deep technical engineering knowledge as one leg and a strong business knowledge as the

other leg of Pi. The 21st Century poses unprecedented challenges to traditional systems engineering practices. To address those challenges, systems engineering is transforming from a field of practice to a field of both research and practice.

The evening concluded with thanks and appreciation for Dr. Madni’s presentation.

Dr. Malcome Currie, May He Rest in Peace

Dr. Malcolm Currie, a member of INCOSE-LA since 2003, passed away unexpected on Thursday November 9. The family is planning a service on November 23. As they will provide more information next week pertaining to the time and location of the service and as they relay their wishes are regarding remembrances, the Chapter will send out a Reflector Notice.

Malcolm, an esteemed colleague and friend, was a frequent attendee at INCOSE-LA speaker meetings, networking events and conferences. He was a champion of systems engineering and regularly asked thoughtful questions of our speakers. He served the chapter in many ways through the years, most recently providing our Meetup account to help us move into social networking. He will be missed.

(Too Many, continued from page 4)

I have seen the dilemma that my engineering students at at Duke University have faced. Do they take a job in civil engineering that pays \$70,000, or join big Wall Street financial firm and make \$120,000? With the hefty student loans that hang over their heads, most have made the financially sensible decision. In some years, half of our graduates have ended up taking jobs outside of engineering. Instead of developing new types of medical devices, renewable energy sources and ways to sustain the environment, my most brilliant students are designing new ways to help our investment banks engineer the financial system.

Help us help you — update your INCOSE profile Log into the INCOSE home page and click on “profile home” to update or correct your information

2016 Board of Directors

| Elected Officers | | | Elected At-large Directors | | |
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| Vice President | Phyllis Marbach | prmarbach@gmail.com | Programs | Dr. Rick Hefner | rhefner@caltech.edu |
| Immediate Past President | Stephen Guine | Stephen.Guine@ngc.com | Systems Engineering Education | Tony Magorno | amagorno@mitre.org |
| Secretary | Jeffrey Willis | Jeffrey.Willis@ngc.com | Ways and Means | Paul Cudney | paulcudney@dslextreme.com |
| Treasurer | Harvey Soldan | harvey.soldan@jpl.nasa.gov | Communications | Lin Yi | Lin.yi.dr@ieee.org |
| Appointed Positions | | | | | |
| Newsletter Editor | Jorg Largent | jorg.largent@incose.org | Student Division Ambassadors | Scott Birtalan | scott.birtalan@ngc.com |
| Technical Society Liaison | Shirley Tseng | shirleytseng@earthlink.net | Reflector Manager | Deborah Cannon | deborah.a.cannon@aero.org |
| Chapter Awards Manager | Phyllis Marbach | prmarbach@gmail.com | Industrial Relations Manager | Open | |
| Professional Networking Chair | Scott Birtalan | scott.birtalan@ngc.com | New Member Ambassador | Collette Kurtz | kurtz905@aol.com |
| Representative to the SF Valley Engineer’s Council | Stephen Guine | Stephen.Guine@ngc.com | Volunteer Coordinator | Karen Miller | karmill888@aol.com |

INCOSE-LA Chapter NEWSLETTER

Vol. 14: Issue 7, December 2016 – January 2017

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 your INCOSE profile (at www.incose.org) to update your information.

| Name | Primary Organization |
|-----------------------|---|
| Gustavo Castillo | Loyola Marymount University |
| Douglas Sciortino | Loyola Marymount University |
| Danielle Leong | Loyola Marymount University |
| Michael Brady | Loyola Marymount University |
| Ali Sotoodeh | Loyola Marymount University |
| Gary Hubl | Loyola Marymount University |
| Daniel Ordonia | Loyola Marymount University |
| Alessandro Perotti | Loyola Marymount University |
| Elena Olufson | Loyola Marymount University |
| Lauren Sarni | Loyola Marymount University |
| Amanda Maninos | Loyola Marymount University |
| Thomas Akers | Zone 5 Technologies |
| Wayne Berg | Northrop Grumman Corporation |
| Mina Mikhael | Northrop Grumman Corporation |
| Brianna MacNider | Northrop Grumman Corporation |
| Huanhuan liu | Loyola Marymount University |
| Christopher Jones | Dassault Systèmes |
| Debbie Hernandez | California State Polytechnic University, Pomona |
| Landale Huynh | California State Polytechnic University, Pomona |
| Corrine Marino | California State Polytechnic University, Pomona |
| Jason Nimitjaroon Hsu | California State Polytechnic University, Pomona |
| Juan Uceda | California State Polytechnic University, Pomona |
| Adrian Zendejas | California State Polytechnic University, Pomona |
| Louis Noble | Air Force Space Command |
| Cody Reese | Naval Postgraduate School |
| Shu Rhonda Bradley | Loyola Marymount University |
| James Richter | SAIC |
| Matt Bergman | |
| Itzhel Dimas | California State Polytechnic University, Pomona |
| Alejandro Preciado | California State Polytechnic University, Pomona |
| Chiaming Lin | California State Polytechnic University, Pomona |
| Hooman Barekattain | Northrop Grumman Corporation |
| Jef Mangelschots | Wabtec |
| Nathan Damodaran | Booz Allen Hamilton Inc. |

INCOSE Systems Engineering Job Bank: Opportunities for Systems Engineers

Interested in learning about job opportunities for systems engineers?

Looking for a talented systems engineer for your project?

INCOSE members can learn about career opportunities and employers can learn about talented systems engineers at the INCOSE Systems Engineering Job Bank:

http://incose.careerwebsite.com/home/index.cfm?site_id=582

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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.

UPCOMING EVENTS

For more details on Chapter-sponsored events and registration, go to incose.org/los-angeles

Chapter Holiday Party!

Date: Sunday, December 11, 2016 - 6:00 p.m. - 9:00 p.m.
Venue: Marina del Rey Yacht Club
Location: 13900 Palawan Way
Marina del Rey, California
Registration required; see page 3

Town Hall Meeting

Date: January 10, 2017, 5:30 p.m. to 8:30 p.m.
Location: in work
Venue: In work
Cost: FREE

International Workshop

January 28 — 31, 2017
Torrance, California
Go to incose.org/IW2017/home for cost and other details

Conference on Systems Engineering Research (CSER 2017)

Date: March 23 — 25, 2017
Location: The Crowne Plaza Hotel in Redondo Beach
See article on page 1 for more details

*For more information on these and other events of interest in the Los Angeles area, look for a Reflector Notice in your email, and check the Chapter website: incose-la.org
Also like us on facebook!*