

NEWSLETTER



2008, 2012, 2017
President's Award
for Most
Outstanding Chapter



2004-14



2015-17

Western States Regional Conference Take Two in 2019

Save the dates of September 13, 14, and 15, 2019 for the second annual WSRC in sunny southern California. We are busy planning another great conference featuring systems engineering leaders and luminaries as keynote speakers plus a technical program of training and presentations on topics of interest to the systems engineering community.

Loyola Marymount University, where the Regional Mini-Conference in 2016 was held, will be the venue for the WSRC, and we are teaming with the Renaissance Hotel near LAX for lodging.

We hope you will attend in person; and, if that is not possible, please consider hosting a remote site to keep your systems engineering practices current, learning about leading edge practices and solutions to challenges the technical community is facing.

This is also an opportunity for members of the Chapter to contribute to this event by joining the team that will make this happen. The whole gamut of roles to provide technical expertise and to facilitate the conference are open. Contact Conference Chair Phyllis Marbach at prmarbach@gmail.com for more information.

"If we embed — and excuse — ambiguity at the beginning, why should we be surprised when we have trouble at the end. As Ackoff noted, "We fail more often because we solve the wrong problem than because we get the wrong solution to the right problem."

David Long, President, Viatch Corporation, 2014 – 2015 INCOSE President

VOTE! Elect Your Chapter Leaders

We are electing officers and directors for the INCOSE-LA Board of Directors. Each year we elect President, Vice-President, Treasurer and Secretary. We also elect directors for two year terms. This is an opportunity for you, the members of the Chapter to select the members of the Board of Directors.

An email message has been sent to each of the members of the Chapter. The email contains a link to the site for voting and instructions on how to vote. Biographies of the candidates are included on the website.

Annual Townhall Meeting

Another opportunity for the members to network with the Board of Directors

The annual townhall meeting will be held on Tuesday, January 8, 2019, from 5:30 p.m. until 8:00 p.m. The meeting will be held at the Buca di Beppo at 1670 S. Pacific Coast Highway in Redondo Beach. There will be a buffet style dinner with soft drinks, hosted by the Chapter. Last time we were there the food was excellent.

REGISTRATION: Registration is imperative due to the limited capacity of the dining room. The registration deadline is Friday, January 4, 2019.

Register at: <https://tinyurl.com/LA2019TownHall>

COST: Individual members free, Corporate Advisory Board affiliates \$5, guests \$10.

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MODELING AND SIMULATION OF DISTRIBUTED HUMAN-AGENT TEAMS

October Speaker Meeting

By Karen Grothe



Dr. James Humann

James Humann, a Postdoctoral Fellow at the U.S. Army Research Lab facility in Playa Vista, was the featured speaker at the October Speaker Meeting. He is researching how best to model and simulate distributed “human-agent teams” as applied in a surveillance system.

A “human-agent team” consists of a human plus autonomous assets such as robots or drones. The Army is interested in optimizing human-agent teams to increase flexibility (through distributed architectures) and resilience (through redundancy and reconfiguration). Multi-agent systems create several systems engineering challenges due to the complexity of interactions, scalability, and of the modeling and simulation of human behavior. Managing these challenges is important to allow the Army to take advantage of technological advances, such as miniaturization, bio-inspired designs, bio-mechanical hybrids, simple swarm robots, and diverse unmanned-air vehicle (UAV) form factors.

The Army requires a human in the loop with autonomous systems – fully autonomous systems are rarely allowed due to concerns about the safety and reliability of systems. Situations in which human-agent teams may be used include surveillance, perimeter defense, search and rescue, and the lockdown of buildings or compounds. Each mission instance is a unique, dynamic environment which may include reactions, particularly hostile, from other actors in the environment.

Dr. Humann’s research is focusing on accurate small-scale models of each agent in a multi-UAV, multi-operator surveillance scenario. His goal is to predict the effectiveness of human-agent teaming during the design phase based on the type, number, and quality of UAVs; on the number and skill of the operators, and on behavioral and task distribution algorithms. Ultimately, his research would be paired with optimization for mission-driven design.

In his research, Dr. Humann has found that human factors increase the complexity of determining human-agent teaming effectiveness. A higher UAV-to-operator ratio increases the human workload while decreasing human situational awareness. A higher level of automation can either increase or decrease human workload but decreases human situational awareness. Humans have an optimal range of workload: too little causes boredom and disengagement while too much causes stress and mental overload. In addition, imperfect automation can cause humans to trust the automation less and begin to ignore the automation. On the other hand, humans may over-trust highly reliable (but still imperfect) automation.

Operators can have varying levels of trust in automation, video gaming experience, spatial awareness skills, multitasking skills, etc., that can affect their performance in human-agent teams.

The specific scenario that Dr. Humann created his simulation for is a surveillance mission to identify all threats within a field before traveling through it. The simulation uses a mixed set of autonomous assets, including fixed-wing aircraft, quadcopters (maneuverable quadrotor UAVs), and ornithopters (stealthy flapping-wing UAVs). The fixed-wing UAVs scan at a high level to identify points of interest, then the quadcopters or ornithopters are used to collect low-level photographs. Humans command the quadcopters and ornithopters and make final threat/nonthreat classification. Dr. Humann’s simulation was written in GAMA, an open-source agent-based modeling tool, with several custom extensions written in Java. Based on the input of the number of fixed-wing UAVs, quadcopters, ornithopters, and human operators, and the camera quality of the quadcopters and ornithopters, the simulation output the accuracy of classification, the speed to complete the mission, and the noise disturbance (stealth) at ground level. He found that increasing the number of quadcopters increased speed with diminishing returns with more than 10 quadcopters. In a system of five quadcopters, six fixed-wing UAVs, and no ornithopters, he found adding human operators increased accuracy and speed up to five operators, with diminishing returns for more than 5 operators. In his plan for future work, Dr. Humann intends to improve his model fidelity and move from on-demand UAVs to on-demand swarms.

The slides from Dr. Humann’s excellent presentation can be found on the INCOSE LA website at <http://bit.ly/INCOSELA-Oct2018SpkrMtg-Slides>.

Get Your Message Out We Can Help

ARE YOU LOOKING FOR EXPOSURE?

Did you know INCOSE-LA offers a wide range of options for your business to gain exposure from advertisements or sponsorships? Options range from Platinum sponsorships for conferences hosted or co-hosted by the Chapter to monthly speaker meetings and to various sized advertisements in our *Newsletter*. If you are interested please contact the Chapter’s Programs Director, Mark TenEyck, at mteneyck11@gmail.com or the Chapter’s Sponsorship Manager, Nazanin Sharifi, at n.sharifi77@gmail.com.

“It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who neither know victory nor defeat.”

Teddy Roosevelt

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A Curated View of Systems Engineering for Science Missions as Science and Practical Art November Speaker Meeting



Dr. Jon Arenberg

Dr. Jon Arenberg, a gifted and knowledgeable speaker, spoke to the membership at the November speaker meeting. Dr. Arenberg leads engineering for Northrop Grumman Aerospace Systems Space Science Missions.

Dr. Arenberg's presentation spoke to younger engineers and grizzled veterans alike, weaving the thread of system

engineering and its value from the Roman Empire to NASA's space telescope, the Chandra X-ray Observatory, and James Webb Space Telescope, and beyond. His presentation reflected his over 29 years of experience working on astronomical programs. Dr. Arenberg noted that events, from the Roman Battle of Cannae to a baseline decision that wouldn't go away on Chandra, can have long range effects.

The project to create the James Webb Space Telescope provided the background for Dr. Arenberg's discussion of the value of and need for systems engineering to create a product that has never been built before, and to perform a mission in a heretofore unexplored environment. The Web is seven times bigger viewing than Hubble, but weighs half as much.

In his discussion of systems engineering, Dr. Arenberg provided several observations. He noted that much is said of process, but that, while, process is important, it is not a substitute for doing the right work at the right time. Many systems engineering processes are aimed to apply to all situations and are, by necessity, very general. Processes are good guidelines, but should not be taken as inviolate, guidelines or statute. Tailoring – defensible tailoring – is appropriate to meet the needs of the project. He further observed that getting the right answer requires asking the correct question at the beginning of a project, and then, during the execution of a project, “are we solving the right problem in light of what we NOW know?”

Dr. Arenberg used the example of developing a never-done-before system to build an “objective function.” An objective function is a mathematical model which embodies a cost (benefit) to be minimized and a benefit to be maximized. The challenge then becomes a simple matter of minimizing costs and maximizing benefits. Dr. Arenberg then posed a question: “That is all great but in the real world the [variables] are not completely known, so what is a systems engineer to do?”

This question served as a segue to a discussion of the inadequacies of technical skills by themselves, and noted the value of “soft” skills. A sampler:

- Communication
 - ◊ Written
 - * Reports and documents
 - * Specifications
 - * Email
 - ◊ Verbal
 - ◊ Presentations
- Organization
 - ◊ Set the right priorities for the systems engineering team
 - ◊ Library design
- Meetings
 - ◊ Right cadence for the problem
 - ◊ Know how to run a meeting
 - Do keep minutes
 - Do record action items
 - ◊ Do make sure all are heard
 - ◊ Make sure you invite everyone; if in doubt, over invite
- Teamwork
 - ◊ Big teams will not meet often face to face
- Cultural
 - ◊ Different organizations do good work differently

Things they never told me about this in engineering school – lessons from the front line:

- Bad ideas are hard to kill
- Be prepared – for anything
- Communication is key
- Some problems are NOT technical
- Some problems are very technical
- Don't prejudge ideas
- Challenge tight requirements
- Respond to challenges overwhelmingly
- Solve problems by thinking all the way to the end

Lessons below the line:

- Meet face to face (avoids the problem of the “mute -button tough guy”)
- New ≠ better
- Never say no to work
- Learn how to name things – call things by their correct names
- If you get a formulated problem it is probably wrong
- Sometimes the dragon wins

One Final Thought

- It is not a sin to make mistake, it is a sin to repeat one
 - ◊ Make a new mistake

The meeting concluded with a questions-and-answers period that reflected the audience's appreciation for the presentation. Dr. Arenberg's presentation is available on the Chapter's page in the INCOSE Collaboration Portal (nee INCOSE Connect).

Not a member? Join INCOSE!

Learn more about becoming a member by going to the INCOSE homepage at <https://www.incose.org/>

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Insightful Sound Bites From Abroad An Excerpt From an Internet Chat

[Rummaging around the internet one occasionally stumbles upon a source of pithy insight and wisdom. Sergey Tozik, an INCOSE member from Israel, is one such source. Below are some snippets of his insights. Ed.]

One of the confusion sources is an extremely clearcut dichotomy between the Process Ontology (PO) inherent in Business Process Modeling Languages (BPMN) and the Object Ontology (OO) inherent in Systems Modeling Languages (UML, SysML).

In Process Ontology, processes (activities) are primary, and objects are auxiliary (as byproducts or characterizations), but in the Object Ontology, the opposite holds - objects are primary and processes are secondary (characterization of objects changes in time). In the PO change is fundamental and in the OO essences are.

Uncover your instinctive Ontology by asking yourself "what is communication?" If you answer "exchange of messages between people and/or computers" then you are in OO. If you answer "a process of interaction between collaborating cognitive and/or computation processes/activities" then you are in PO.

The OO/PO dichotomy is also a source of the problem of integrating systems engineering and project management - one has to decide which ontology they use.

Object-Process Methodology (ISO/PAS 19450) attempts to combine both processes and object at the expense of strength and flexibility.

"User Requirements" is an euphemism at its best and an oxymoron at its worst. It requires abstracting away all business or personal concerns apart of the need to use a technological system, and these concerns come back with vengeance at the transition-to-operation stage.

A Freudian slip of using Customer Requirements instead of User Requirements reveals the real nature of the beast. Users don't require anything from the developers, customers do.

Customers are not users, but they represent the users to the developers, and the developers to the users. As user-developer mediators, the customers become eventually responsible for the Transition to Operations, and it becomes their problem to "sell" the system to the actual users and the management to assure benefit realization.

STEM Opportunities Reach Out to the Next Generation

If you would like to make a difference in someone's life, we'd love for you to be a mentor for a STEM (Science, Technology, Engineering, and Mathematics) Advantage Scholar. The scholars are men and women pursuing a bachelor's degree in a STEM-related field, primarily computer science, technology, engineering (aerospace, biomedical, chemical, civil, electrical, mechanical, software) or math, at Cal State Los Angeles, Cal State Dominguez Hills, Cal State Northridge, Cal State Long Beach, or Cal Poly Pomona.

Mentoring makes a difference. Young people thrive when they know someone cares about their future and when they receive guidance about educational and career options. When faced with the choice to pursue STEM careers, traditionally under-served college students are often opting out. As a result, we have too few students graduating with the STEM skills companies need to compete, yet the Bureau of Labor Statistics projects that by 2022, California will have the largest STEM workforce in the nation.

Mentors provide a vital role in the success of STEM Advantage Scholars by being a role model of a successful STEM professional. In addition, mentors bolster the students by:

Providing personal support, guidance, and coaching on the life skills that will help students stay in college and complete a bachelor's degree in a STEM discipline

Exposing students to the lifelong benefits of higher education and a career in a STEM-related field

Being a trusted advocate, one whom students feel comfortable asking questions related to school, work, and life.

Mentors commit to "1:1:1" – to meet with their mentee for one hour, once a month, for one year. These meetings may be via Skype, Zoom, Google hangouts, in person, phone, invite them to your workplace or project environment, etc. Mentors are provided the application packet on their mentee for background information. Mentors and mentees complete a Mentoring Worksheet which they may use to prioritize and discuss goals.

To be a mentor, please contact Lee Ann Kline at leeann@stemadvantage.org.

See www.stemadvantage.org for information on the program. Thank you in advance.

*Western States Regional Conference
Coming Soon to a Chapter Near You!*



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Fourth Quarter Strategic Planning Meeting

The fourth Strategic Planning Meeting was held on November 10, 2018. Chapter President Rick Hefner opened the meeting with a warm greeting for the attendees, Phyllis Marbach, Collette Kurtz, Mark TenEyck, Lin Yi, Paul Cudney, Karen Miller, Nazanin Sharifi, Scott Birtalan, Shirley Tseng, Mark McKelvin, Karen Grothe, and Eric Bell.

The strategic planning meetings are structured around committee reports, and, in this event, beginning with Treasurer Lin Yi's reviewed of the finances of the Chapter. The expenses are slightly less than the income, which is the goal. The primary source of income is the allocation from INCOSE based on the number of members affiliated with the Chapter. The discussion included a preliminary look at the expenses for 2019. A major activity, and major expense, for 2019 is the Western States Regional Conference. An additional activity of note for 2019 is the preliminary preparations for the 2020 Conference on Systems Engineering.

Plans for 2019 were discussed. Potential speaker meetings through the month of April were discussed as were plans for the important townhall meeting to be held January 8, 2019. The Board decided to host a networking event at the International Workshop as an opportunity for Chapter members to meet colleagues from the Los Angeles area. Past soirees have featured informal speeches by Americas Sector President the President of INCOSE.

Scott Birtalan spoke for the Communications Committee. The Board discussed a variety of topics and style changes to make the speaker meetings more interesting.

Karen Grothe discussed membership. In terms of numbers of members, the Chapter is relatively constant, with new members joining at about the same rate as old members allow their membership to lapse. One of the challenges the Board takes seriously is providing value to the systems engineering community in the Los Angeles area and telling people about the value; the number of members is a convenient metric toward this end.

Phyllis Marbach discussed the Western States Regional Conference which will be held September 19 – 22, 2019. She is the chair of the team that will be facilitating the conference. Members of the team will be from chapters throughout the western United States and is an opportunity for members of the Los Angeles Chapter to help host this conference. Many of the details are coming together, such as the venue – Loyola Marymount University – and lodging – the Renaissance Hotel near LAX. A timeline has been roughed out: start Friday at noon and run until Sunday at noon. Possible tours of local engineering facilities were discussed as added attractions. So too a variety of possible themes were discussed. This initial discussion was necessarily tentative, and will need your help to pull it all together. Contact Conference Chair Phyllis Marbach at prmarbach@gmail.com for more information.

Strategic Planning Meetings are open to all the members of the Los Angeles Chapter. Watch for reflector notices announcing future planning events.



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Our industry relevant
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Public Programs — Winter 2018

Agile Project Management (starts January 12)

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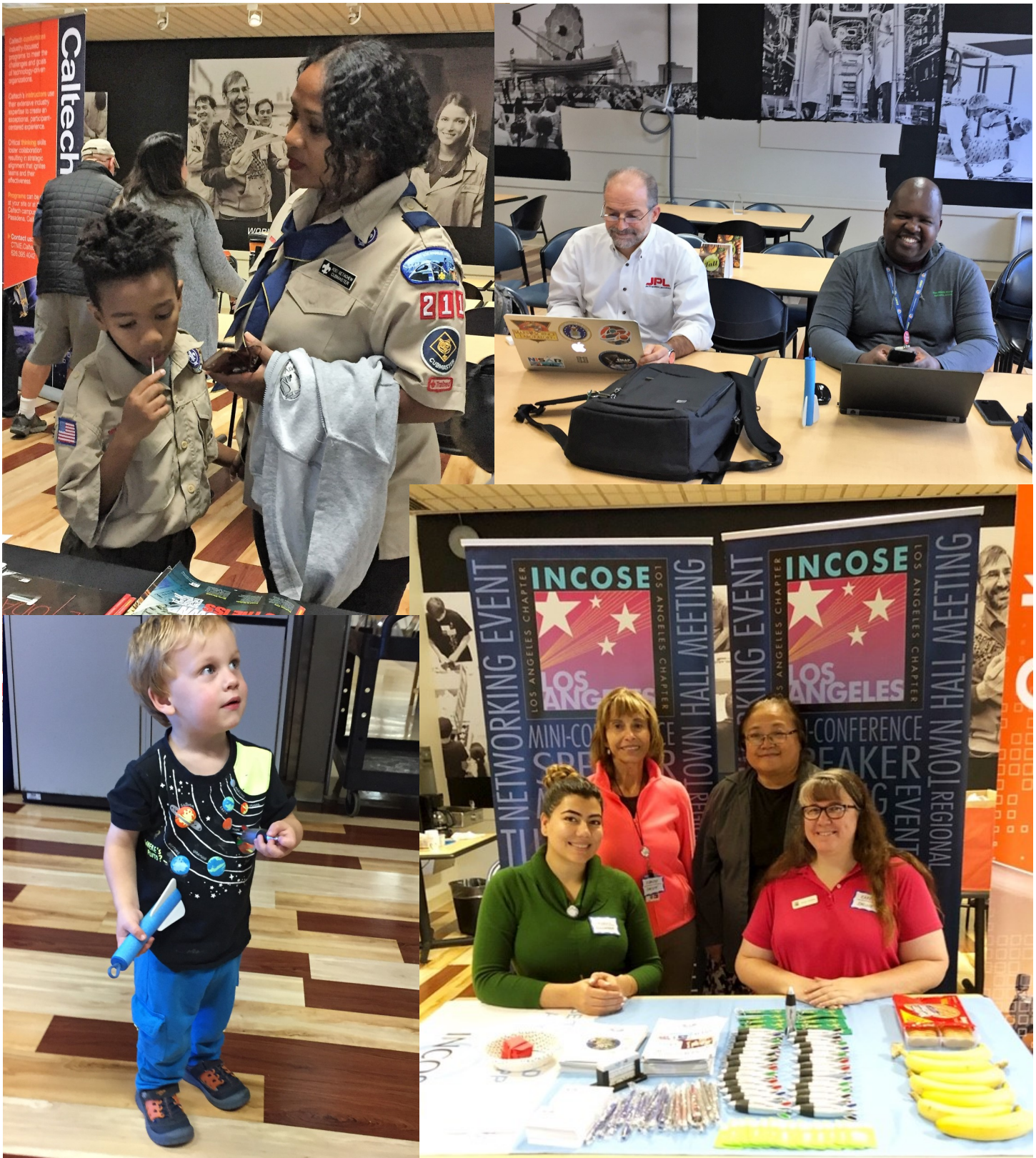
Predictive Analytics (starts February 2)

Project Management Certificate Program
(starts March 3)

Business Analysis (starts April 20)

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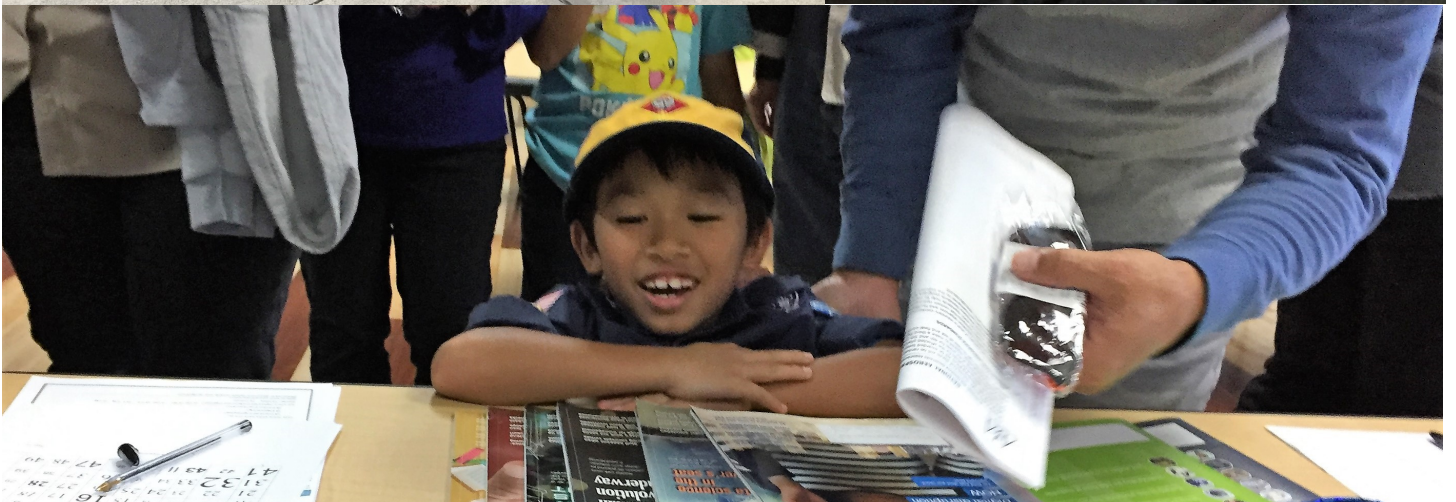
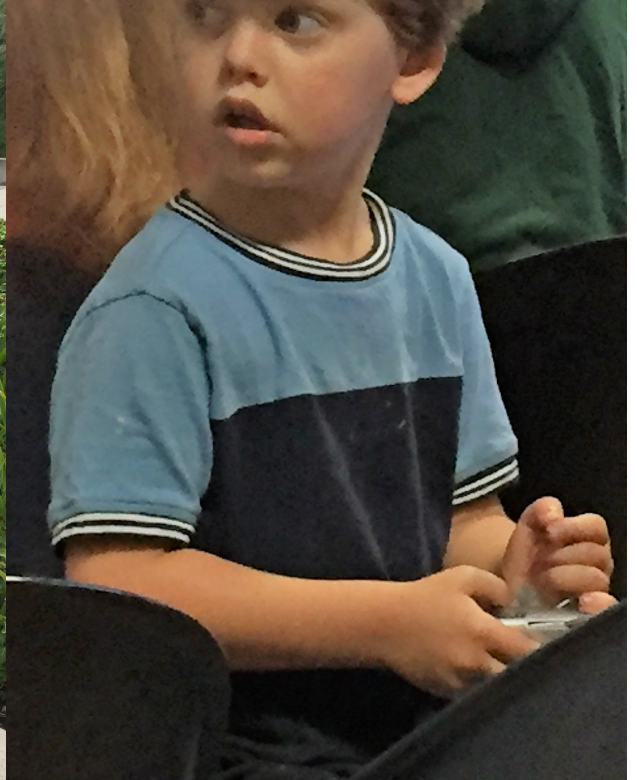
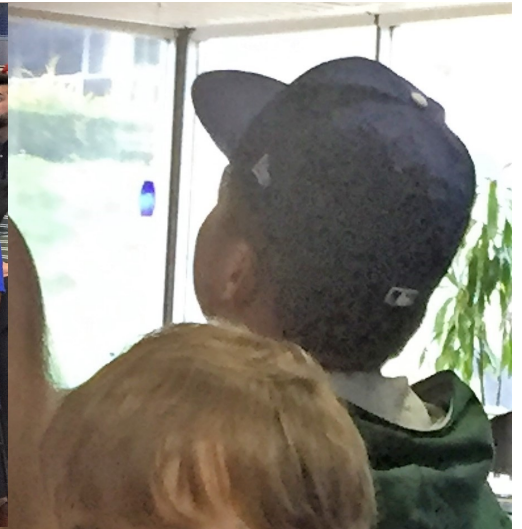


Science, Technology, Engineering and Math — Our Future Systems Engineers

Northrop Grumman teamed up with several Los Angeles area organizations to host a STEM event for future engineers and their families. INCOSE-LA was one of the participating professional organizations. The event featured presentations on space programs, hands-on demonstrations, and small gifts. The Caltech soft “slingshot” rockets and the INCOSE four-color “rocket” pens were two of the most popular mementoes.

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The 2018 Western States Regional Conference

Ten INCOSE chapters from the western United States held the inaugural Western States Regional Conference on September 20-22, 2018, in Ogden, Utah. The conference took place at the Northrop Grumman Conference Center in the scenic Ogden Canyon. The technical program featured 41 presentations plus panel discussions, tutorials, and workshops.

On Thursday, September 20th, the conference opened with Richard Jee, Chief Engineer for BAE Systems, speaking about the complexity of defense systems and the importance of managing workforce development. Following Richard Jee's opening remarks, the conference continued with a choice between tutorials or presentations. Several individuals took the Systems Engineering Professional Beta Exam, offered that morning.

The next day—Friday, September 21st—included three tracks of presentations and panel discussions about topics spanning Agile, model-based systems engineering, project management, resilience, sustainability, systems engineering across the enterprise, and ground-breaking specialties. A Systems Engineering Professional Development Day of presentations was broadcast live to four satellite sites in Seattle and Los Angeles. Garry Roedler, INCOSE President and Senior Fellow and Engineering Outreach Program Manager at Lockheed Martin, delivered a keynote about the Future of Systems Engineering, the Systems Engineering Primer, and the updated Definition of Systems Engineering developed by INCOSE Fellows. During the evening banquet, Dr. Benjamin E. Goldberg, Senior Director of Science and Engineering at Northrop Grumman, delivered a dynamic speech on how to apply systems engineering principles to solve current technological challenges.

The conference concluded on Saturday with two tracks of presentations and two workshops. Justin McMurray, Director of Programs at Northrop Grumman, gave a keynote about the future of systems engineering. Paul White, WSRC 2018 Chair and Senior Systems Engineering for Kihomac, thanked participants for their attendance, and Phyllis Marbach, WSRC 2019 Chair and retired from Boeing, spoke briefly about next year's conference.

The committee is grateful to the sponsors of the conference, namely the INCOSE Americas Sector, Lockheed Martin, No Magic, Northrop Grumman, Siemens, The AnyLogic Company, the California Institute of Technology, Capella, i3Day Innovation, Kihomac, Sysnovation, The University of California at San Diego Extension, Weber State University, Project Performance International, CharlesVono.com, nymbysys, and the Utah Advanced Materials and Manufacturing Initiative.

The chapters which planned the event included Wasatch (the host chapter), Cascade, Central Arizona, Colorado Front Range, Enchantment, Los Angeles, San Diego, Seattle Metro, Snake River, and Southern Arizona. Participants traveled from sixteen U.S. states and one province in Canada to attend. In all, 119 attendees participated—92 at the host site in Utah and 27 at the satellite sites.

Thanks go to all the attendees and those who provided tutorials, presentations and panel discussions in addition to the invited keynote speakers. The exchange of ideas, challenges, past experience and future goals of systems engineering was very stimulating. We indeed discussed Systems Engineering out W.E.S.T. in the Workplace, Environment, Sustainment and Technology. Participants enjoyed delicious food, ample networking, and stunning scenery. The conference chair, Paul White, and the committee members were very happy to have provided this conference for our western chapter members and invited guests.



Photo above: WSRC presenters and teams members. Photo upper right: WSRC Sponsors upper right, (L to R): Garry Roedler, Rick Hefner, Paul Nelson, Paul White, Mark Sampson, Brian Selvy, Charlie Vono, and Jason Wilson. Not pictured: Richard Baran, Howard Cooper, Jeff Edwards, Dr. David Ferro, Robert Halligan, Stephane Lacrampe, and Dave Walden.



GOODBYE 2017



TUTORIALS



INFORMATIVE
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WESTERN STATES
REGIONAL CONFERENCE



CSEP/ASEP
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TOWN HALL

PRESIDENT'S AWARD
FOR OUTSTANDING
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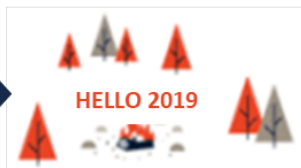
GREAT SPEAKER
MEETINGS



HOLIDAY PARTY



HELLO 2019



2018 Retrospective

This has been a busy year for the Los Angeles Chapter. The speaker meetings have covered a range of topics from the challenges of systems engineering in deep space to autonomous vehicles and the highways of the future. Members of the Chapter have worked with the systems engineers of the future at Loyola Marymount University and with a Caltech team designing a habitat for Mars. More down to earth, members have supported STEM activities, as noted in the centerspread of this edition of the *Newsletter*. Several members of the Chapter were active in the first annual Western States Regional Conference, helping with the facilitation and presenting papers.

2019 promises to be an equally interesting, exciting, and challenging year. The Chapter will be hosting the annual Western States Regional Conference in Redondo Beach and starting preparations for the 2020 Conference on Systems Engineering Research. And, of course, the Chapter will be conducting speaker meetings, tutorials, and other opportunities to learn more about our profession and to network with fellow engineers.



Looking for a career change to a top
Glassdoor rated company?
Come join us!

We are looking for talented engineers across a number of disciplines to join our teams in our Bellevue, WA and Brea, CA locations. Check out our careers (at base2s.com/about-us/careers/) to explore our current openings in southern California and the Pacific northwest.

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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	Organization
Sean Li	
Rudolph Charles	LinQuest Corporation
Merrisa Griffin	Northrop Grumman Corporation
Monica Serafico	Booz Allen Hamilton Inc.
Jack Goodwin	SAIC
Rawan Alkhamees	Loyola Marymount University
Albert Hayden	SAIC
Sinem Akinci	Booz Allen Hamilton Inc.
Marc Leatham	Booz Allen Hamilton Inc.
Anthony Tucker	Embry Riddle Aeronautical University
Wande Olafisoye	Moog Inc.
Lan Nguyen	LinQuest Corporation
Abdulhameed Abdal	Loyola Marymount University

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If interested, please contact:

Mark TenEyck, Programs Director: mteneck11@gmail.com

Nazanin Sharifi, Sponsorship Manager: n.sharifi77@gmail.com

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

**5: 30 p.m. Saturday evening,
December 8, 2018**

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



**\$20 for members
30 for guests and non-members
\$50 for visitors**



**Great people ✱ Fine food ✱ Lots of Fun
Entertainment: Engineer-Turn-Comedian Don McMillan
An INCOSE-LA Tradition!**

Registration Required — Attendance is Limited!

Register at :<https://tinyurl.com/LA2018Party>



Don McMillan has a Master's Degree in Electrical Engineering from Stanford University. He was a member of the design team on the world's first 32-bit microprocessor. He went on to become a founding member of the startup company: VLSI Technology. Then in 1993, he was the \$100,000 Comedy Grand Champion on "Star Search." He has performed on "The Tonight Show", HBO, and all over the Internet. His unique act combines smart comedy observations with his one-of-a-kind PowerPoint presentation. Don spends most of his time writing and performing customized corporate comedy shows for companies like Google, Apple, IBM, Ford and ExxonMobil. He has performed more than 800 corporate shows in the last 20 years and he was named the #1 Corporate Comedian by CBS Business Network.

2018 Board of Directors

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Immediate Past-president	Phyllis Marbach	prmarbach@gmail.com	Systems Engineering Education	Tony Magomo	tmagorno@gmail.com
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Treasurer	Lin Yi	Lin.yi.dr@ieee.org	Communications	Scott Birtalan	scott.birtalan@ngc.com
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Technical Society Liaison	Shirley Tseng	shirleytseng@earthlink.net	Reflector Manager	Deborah Cannon	Deborah.a.cannon@aero.org
Chapter Awards Manager	Rick Hefner	rhefner@caltech.edu	Social Media Manager	Doris Gebelein	doris.gebelein@lmco.com
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

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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 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: www.incose.org/los-angeles . Like us on Facebook

Free Jeopardy Game Training for CSEP/AECP Testing

Tuesday, December 4 2018 starting at 6:00 p.m.
Loyola Marymount University, Los Angeles
Standby for a Reflector Notice in your e-mail

Annual Holiday Party

Saturday, December 8, 2018
5:30 p.m. — 7:30 p.m.
Del Rey Yacht Club
Marina Del Rey, California

See page 11 for details

Register at <https://tinyurl.com/LA2018Party>

2020 International Science and Engineering Fair

An important gathering of the local corporate
and STEM community

Tuesday, December 11, 2018
4:00 — 6:00 p.m.

Discovery Cube Orange County
2500 N. Main Street, Santa Ana, CA 92705
*To register, contact Cheryl Braun at 949-265-6410
or email cbraun@ipsf.net*

Free CSEP/ASEP Paper Testing

Saturday, December 8, 2018 starting at 12:00 noon
Loyola Marymount University, Los Angeles
Register for this exam:
<https://tinyurl.com/LMU8Dec18CSEPexam>

Townhall Meeting

The members' opportunity to be heard and contribute
Tuesday, January 8, 2019
5:30 p.m. — 8:00 p.m.

Buca di Beppo
1670 S. Pacific Coast Highway
Redondo Beach, CA 90277

No cost for members

Register at <https://tinyurl.com/LA2019TownHall>

Soiree at International Workshop

Monday, January 28, 2019
6:00 p.m. — 8:00 p.m.

Torrance Marriott
3635 Fashion Way, Torrance, California 90503

No cost for members; no host bar

Standby for a Reflector Notice in your e-mail

February Speaker Meeting

Tuesday, February 12, 2019
The Aerospace Corporation
El Segundo, California

Register at <https://tinyurl.com/LA2019Feb>

Standby for a Reflector Notice in your e-mail