MEMBERS NEWSLETTER

March 2018 - Q1

INCOSE

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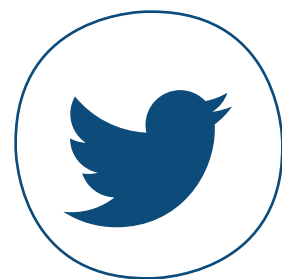
President's Corner

Garry Roedler, garry.j.roedler@lmco.com

It is my pleasure to be addressing our membership in my first contribution to the President's Corner section of our newsletter. It is truly my honor to serve INCOSE as president. Over the past two years, I served as the president-elect during Alan Harding's tenure as president. Alan's contribution to INCOSE has been quite significant, and I thank him for the positive impact he has had on INCOSE through his accomplishments, passion, friendship, and insightful leadership. I also want to take a moment to welcome Kerry Lunney as the new INCOSE president-elect, who will work closely with me over the next two years.

For INCOSE, 2018 started with the promise of a great year. In addition to conducting a very successful International Workshop (IW) in January, we have initiated a number of high-value strategic and operational projects that should move us forward as an organization and have impact on the systems engineering discipline.

We were very pleased with the results of the IW this year, which had the participation of well over 500 people who were highly engaged in technical work in their areas of systems engineering. I would like to highlight a few of the many results from the workshop that can impact INCOSE for the future:

- The Board of Directors conducted strategy sessions prior to the official start of the workshop that resulted in actions to address building strategic alliances with other associations, creation of a professional development platform, improvement of our member retention, and ways to help chapters.

- Members held a special strategy session with senior leaders from nearly a dozen associations, academic organizations, and government agencies to look at the need to evolve systems engineering for the future. The team defined the problem and established a scope and guidelines for an industry initiative for systems engineering of the future.

- New working groups were formed that broaden the scope of our technical program. These include System and Software Interface, System Safety, Configuration Management, and Quality Management.

- Members exhibited excellent technical work across a large number of working groups and initiatives, including continued impact from the model-based systems engineering focus.

As we look forward, we need to continue to focus on the future needs of both INCOSE and our discipline. The following are five focus areas for 2018:

- INCOSE In-reach – We need to integrate across our geographic and organizational boundaries to be able to engage all stakeholders and leverage the talented resources of the entire organization. This requires improved communications and focusing on what is relevant to our stakeholders and provides value to our members.

- INCOSE Outreach – We believe we can achieve more through teaming and collaboration. We are working towards a more strategic and systematic approach to match alliances with common objectives and expected outcomes that help ensure both "partner" organizations and the systems engineering discipline obtain value from the relationships.

- Systems Engineering Professional Development – We will be developing a comprehensive systems engineering professional development capability. This will pull together the applicable assets and services across INCOSE, as well as integrate elements from other providers. We plan to build a platform-based ecosystem to support a highly interactive community.

- Evolving the Discipline – We need our systems engineering practices to be able to address change, increasing complexity, affordability, agility, and resilience. In addition, we need to better deal with the learning, discovery, and evolution that accompany more dynamic environments. To do this, we will be taking actions to evolve the discipline as indicated in the *Systems Engineering Vision 2025.*

- Improved Infrastructure and Operations – We will be placing significant emphasis on improving our infrastructure to better support the needs of our organization and members. This includes our IT infrastructure, membership engagement and support, internal operations, and global operations.

Finally, I want to mention that our International Symposium (IS) will be held in Washington, US-DC during 9-12 July. It returns to the US after successful events in Edinburgh, SC and Adelaide, AU during the past two years. All factors point to this being a great event, including a very exciting set of keynote speakers, a diverse and high-quality set of paper presentations, and panels. It will also include invited content focused on "Systems Engineering of the Future" and a set of presentation-only sessions, a first for the symposium. Join us at the symposium to engage in a breadth of INCOSE activities, listen to thought-provoking presentations about the state of the practice, network with others, visit the exhibition hall, and get involved in the technical program.

President-Elect's Corner

Kerry Lunney, kjlunney@tpg.com.au

I cannot believe it has been six weeks since I was sworn in as INCOSE's president-elect. The time has just soared by. For this article, members suggested I provide some insight into the first fifty days as president-elect, so here is my story.

Firstly, it is not a journey but a sprint. However, it is not the speed that is the challenge, but the juggling act required to perform this job. There is so much in play with INCOSE from basic administration duties to operational streamlining, from event preparations to working group commitments, from strategic short-term plans to moulding our future in the evolution of systems and systems engineering. INCOSE is just a great place to be!

Here are snippets from the diary of my first fifty days:

✓ I am sworn in at IW2018 and the fun begins.
- → It's "Meet & Greet" time with so many interesting people.
- → Prepare the presentation on the Strategic Highlights for the closing session.
- → Aim to attend two Working Group sessions next year (fingers crossed!).

✓ Set the alarm for 2:55 a.m., allowing five minutes to get on line for a meeting at 3:00 a.m.
- → Start reviewing the first set of INCOSE policies, as directed by Kirk.
- → Check the Policy RACI for details (thank you Andy (Chief of Staff)).
- → Hurry, there is another telephone conference and it is only 6:00 a.m.!
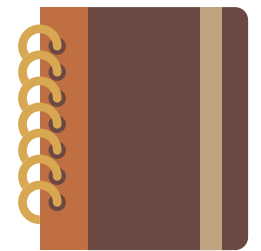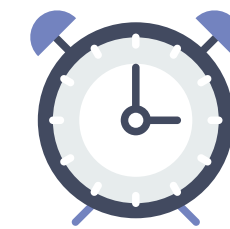
✓ More and more General Data Protection Regulation (GDPR) considerations and questions – send to Bill (CIO). He is drafting recommendations on the way forward, to be presented to the Board in the March/April timeframe.

✓ Another meeting and another meeting. Check the minutes, and the next set of minutes, and the revised minutes of the first meeting, and the next set of minutes, and another set of minutes. Where did these come from? How do minutes expand over time?

✓ Set the alarm for 5:00 a.m. It must be a Wednesday.
- → Conduct telephone conferences with the president, followed by another with the INCOSE officers, and then with the certification program manager.
- → Only 9:00 a.m. and I am ready for lunch!

✓ Check INCOSE Connect for specific files.
- → Send SOS to Christine to locate files.
- → Instant response which is impressive considering it is Sunday afternoon for Christine!

✓ Review a few emails and memos on events' preparations.
- → The IW2018 survey results are in, quite good overall.
- → Review and agree on the possible candidates for the last keynote speaker for IS2018.
- → Nominations and elections meeting is held (and I missed it).
- → Check diary for next meeting – oh no 1am, tough going.

✓ A telephone conference at 11:00 p.m.? Is this correct? Someone else must be doing the 4:00 a.m. shift.

✓ Budget reporting is ready to go.
- → Review the Professional Services draft document.
- → Review MARCOM initiatives for State of the Discipline (a great proposal).
- → Review a couple of MoUs drafted for two new alliances, how exciting!
- → Memo to Kerry, don't forget to organise the awards assessment review.

✓ Oops it's Friday and I forgot to set the alarm but I still made it to the 5:30 a.m. Professional Development Portal Prototype call.
- → The CIO Advisory Group is up and running.
- → The Certification Operational review kicked off (also led by Kirk). This is a great start for the CAG.

✓ Need a webpage for the Technical Leadership Institute (TLI)– how did we not have one?
- → Design new Director's Report templates.
- → Don't forget to speak to Andy on updating the nineteen organisation charts.
- → Deliver the State of the Nation Webinar with Garry.

✓ Another Friday but I need a driver.
- → Organised a colleague to drive so I can concentrate on a policy review meeting in the car. (I'm on a business trip in rural Australia and too busy to talk, drive and look out for kangaroos on the road.)
- → An opportunity with a third party using an INCOSE product arises, terrific!
- → Need to create another policy.
- → Prepare responses to State of the Nation webinar questions.
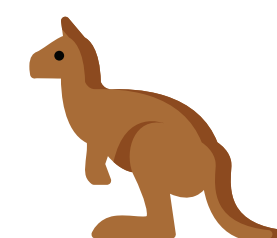
✓ Sleep in- the first call is not until 7:00 a.m.!

President-Elect's Corner

Kerry Lunney, kjlunney@tpg.com.au

And so on and so forth….

As an additional bonus, I am having some fun with students from Purdue University, US-IN on drafting architecture for the Professional Development Portal Prototype. Likewise, I am meeting so many individuals from around the world interested in systems, it makes this entire volunteer role worthwhile.

It will be interesting to see what I may think in six months' time.

I wish you all the best,

Kerry Lunney, INCOSE President-Elect

Cycling Around Jacksonville

Notes from the Board

Rachel LeBlanc, marcom@incose.org

We held a very successful International Workshop (IW) in Jacksonville, US-FL in January. This offered the board an opportunity to meet with INCOSE leaders for a strategy session just before the official IW kick-off. The strategy session covered important topics tied to our organizational value streams including membership retention, developing impactful partnerships, expanding professional development, and enhancing our publications. During the IW, those in attendance had an opportunity to hear from the board on the state of INCOSE activities. All of these presentations can be found on our INCOSE YouTube site.

The Board of Directors (BOD) continued work on refining the strategies for our value streams. Each lead presented their plans and developments since the previous update. Publications plans include increasing awareness of existing material, enhancing accessibility for members and non-members, and encouraging more author participation. Membership retention will focus on increasing

Notes from the Board

engagement and onboarding of new members, including providing chapter support since our membership is most active at the local level. Events continues its work to streamline event operations. They have plans to increase support services for local events and create new events to attract diverse audiences. The professional development team will be focusing on developing a scalable web-based portal to serve as a marketplace for systems engineering training.

Several appointments were made at the BOD meeting:

- Bob Swarz, Policy Management Committee (PMC) Chair (formerly known as Ways and Means Committee)
- John Snoderly reappointed as Grievance Chair
- Bill Miller, Nominations and Elections Chair (previously Co-Chair)
- Alan Harding, Nominations and Elections Co-Chair
- Ken Kepchar, Assistant Director for Standards Initiative (TechOPs)
- Richard Martin, Deputy Assistant Director for Standards (TechOps)
- Joe Marvin, PMC, TechOps Representative
- Jim Armstrong, Nominations and Elections, TechOps Representative
- Robert Edson, Assistant Director, IT (CIO)
- Angela Robinson, Assistant Director, IT (CIO)
- Larry Strawser, Assistant Director, Research (Academic Matters)
- Lefei Li, Assistant Director for Education, Asia-Oceania Sector (Academic Matters)
- Rob Vingerhoeds, Assistant Director for Education, EMEA Sector (Academic Matters)
- Ramakrishnan Raman, Assistant Director for Asia-Oceania Sector
- Richard Matt, Assistant Director for Recruiting & Retention, Americas Sector
- Eric Belle, Assistant Director for Events, Americas Sector
- Alice Squires, Liaison to Americas Sector, Academia
- Bill Scheibel, Assistant Director for New England, Americas Sector
- Renee Steinwand, Assistant Director for West, Americas Sector
- Alan Harding, Assistant Director for Social Media (MarCom)

Nominations and Elections has begun working on identifying candidates for the following positions that will be on the ballot in 2018 – Secretary, Director of Marketing and Communications, and Americas Sector Director.

Sector Updates

Americas

Submissions Coordinated by Antony Williams, Antony.Williams@jacobs.com

The Americas Sector leadership is creating a visual interactive map of the Americas Sector meeting locations. While currently a "work in progress," the map provides a nice view of where INCOSE Chapter activities happen.

Americas Sector Meeting Locations – Are You on the Map?

We are actively working to document where all the Americas Sector Chapters are currently holding their chapter meetings so that you can find one near you! The most current information on this project is available at this link.

If your chapter is not on the map – send your meeting location(s) to antony.williams@jacobs.com.

New Chapter Leader Training

We presented the revised New Chapter Leader Training course to a packed crowd at the International Workshop (IW) in Jacksonville, US-FL this year. The course includes:

- INCOSE Overview – Alan Harding, INCOSE Past President

- Certification and Technical Operations – Kevin Weinstein, Deputy Director for the Americas and Renee Steinwand, Assistant Director for Americas West

- Chapters and Officer Roles – Serge Landry, Asia Oceania Sector Director

- Resources, Central Office, and Events – Danni DeRoche, Central Office and Eric Belle, Americas Assistant Director for Events

- Keys to Effective Chapters and Circle Awards – Tony Williams, Americas Sector Director

A copy of the presentations and the video is available at the Keys to Effective Chapters wiki page, http://keys-to-effective-ch.wikispaces.com/.

If your chapter is not represented, email Tony Williams at antony.williams@jacobs.com

Regional Conference Call For Presentations

The Second Annual Texas Gulf Coast Chapter Systems Engineering 2018 Conference – Systems Engineering in Aerospace and Oil & Gas - "A Renewal of Exploration" – will occur on the 3 May 2018. More information on how to attend or submit a presentation is available at: https://www.incose.org/ChaptersGroups/Chapters/ChapterSites/texas-gulf-coast/chapter-events/conferences/tgcc-2018-conference

The Western States Regional Conference – Systems Engineering Out W.E.S.T. (Workplace - Environment - Sustainment - Technology) will be held 20-22 September 2018, in Ogden, US-UT. If you are interested in submitting a presentation, more information is available here: https://cdn.evbuc.com/eventlogos/168620564/finalwsrcflyercallforproposals.pdf

The INCOSE Chicagoland Chapter Spring 2018 Seminar "Writing Good Requirements" will occur on 14 April 2018, in Schaumburg, US-IL. More information on the event and to register can be found at this link: https://incose2018springseminar.eventbrite.com/

Los Angeles Chapter

Phyllis Marbach, prmarbach@gmail.com

Over fifty INCOSE-LA members and guests ended 2017 with a holiday party at the Del Rey Yacht Club thanks to the hospitality of Yacht Club member Bo Oppenheim, INCOSE Fellow. Fireworks and a lighted boat parade started the festivities, followed by a buffet dinner and entertainment.

INCOSE-LA started 2018 with a town hall meeting held at Buca di Beppo in Redondo Beach, US-CA. Twenty-six members attended. In addition to enjoying the delicious food, we recognized the 2017 board members and inducted the new board for 2018.
The chapter was proud to recognize the co-chairs of the 2017 Conference on Systems Engineering Research (CSER), Terry Rector and Marilee Wheaton, during the event. The chapter also recognized Marilee Wheaton with the Susan C. Ruth Award. This award is presented to a long-time member in recognition of volunteer service to the chapter for at least five years. The INCOSE-LA Chapter is very grateful for Marilee's support during 2017

Sector Updates

Americas

and through the years. Andrew Murrell received the INCOSE-LA President's Award. Andrew has been extremely devoted to the INCOSE-LA chapter this past year. He petitioned his management to establish Rockwell-Collins (RC) in Irvine, US-CA as a remote employee speaker location. Eventually, working with his security organization, he was also able to allow escorted guests to attend from that location as well. In addition to supporting the remote speaker location, Andrew has been attending the video Systems Engineering Handbook V4.0 trainings on Thursday evenings with a group of RC employees. Andrew's enthusiasm for spreading the word about systems engineering best practices truly embodies the INCOSE 2025 Vision to "broaden the base of systems engineering practitioners."

Following the awards presentations and induction of officers, our 2018 president, Dr. Rick Hefner, conducted a town hall meeting. Rick asked those present questions about our initiatives and events to learn if members are satisfied, or if we should have these events more frequently. There was also discussion regarding things we might want to change. The board will use this feedback as they plan the events of the year. INCOSE-LA is grateful to Mark TenEyck, our programs director, and Dassault Systèmes for co-sponsoring the town hall.

We held our first quarter strategic planning meeting on the 10th of February in Manhattan Beach, US-CA where board members were trained in our CONNECT site and Trello. Directors presented committee reports and the chapter discussed the budget for the year. Additionally, the chapter is planning an Agile tutorial in March at Caltech. More information will be available on our website as we finalize plans.

The first speaker meeting was on the 13th of February where Shaun Westbrook, a principal HMI Lead and Futurist at Honda R&D Americas, presented "Vehicle Human Interaction and Internet of Things (IoT)." We are lining up other speakers for the second Tuesday of each month at The Aerospace Corporation in El Segundo, US-CA. Check

our website here to register and see the latest: www.incose.org/los-angeles.

INCOSE-LA has signed the memorandum of agreement with the Wasatch INCOSE Chapter to support the first annual Western States (US) Regional Conference (WSRC) on the 20-22 of September. The venue is in scenic Ogden Canyon, US-UT, forty-two miles north of Salt Lake City. The theme is, "Systems Engineering out W.E.S.T.: Workplace, Environment, Sustainment, Technology." Save the date and plan to join us in Utah or join us remotely during the Systems Engineering Professional Development Day (SE-PDD) on the 21st of September.

San Diego Chapter

Greg Bulla, gbulla@yahoo.com

Software Process Dynamics

Presented by Dr. Ray Madachy, Associate Professor for Systems Engineering, Naval Postgraduate School, Wednesday, 21 March, 6-7pm, San Diego. Please see https://sdincose.org/ for details, including webcast information.

Synopsis:

This presentation will give an overview of software process dynamics modeling for assessing and optimizing software development strategies. It explains how simulation of interrelated technical and social factors can provide a means for understanding and improving processes.

It will introduce software process modeling with system dynamics, model structures and system behaviors, the modeling process, and present case studies.

System dynamics is a rich and integrative simulation framework used to quantify the complex interactions and the strategy tradeoffs between cost, schedule, quality and risk. Many questions abound when building software: What to build? Who will build it? Where/how to build? When and in what order? How do you adapt to change? And, how much is enough?

Speaker: Ray Madachy
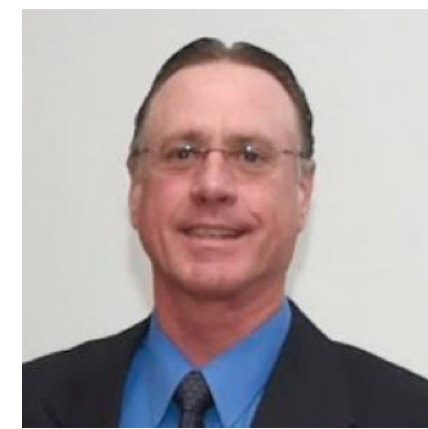
Dr. Ray Madachy has been an Associate Professor since 2008 at the Naval Postgraduate School. Ray received his Ph.D. from the University of Southern California in 1994. His background is in modeling and simulation of processes for architecting and engineering of complex systems; cost analysis and value-base engineering of software intensive systems; quantitative methods for systems risk management; systems and software measurement; process improvement; and quality; integrating systems engineering and software engineering disciplines and empirical-based research with process simulation.

A Better Brew - Benefits of Applying Systems Engineering in the Beer Industry

Presented by Tim Heath, director of engineering, at Premier Stainless Systems, Wednesday, 18 April 2018, 6-7 p.m., San Diego, US-CA. Please see https://sdincose.org/ for details, including webcast information.

Synopsis:

In the 1980's, there were fewer than 100 breweries operating across the entire US. By the end of 2016, that number had risen to nearly 5,300. With that surge came a demand for purpose-built brewing equipment; largely based on proven designs from European equipment. As craft brewing began to push the limits of beer styles and brewing processes, the brewing equipment needed to change to provide the necessary capabilities.

Sector Updates

Americas

Premier Stainless Systems produces brewing equipment for small and mid-size breweries, including overseas customers. While a core product line exists, each system is customized and hand built to the users specifications - all of this occurring over a development and production lifecycle of just 26 weeks.

This presentation will show how we apply systems engineering processes to design and manufacture custom brewing equipment to meet the needs of brewers. It will also detail how the systems engineering process is applied to the development of hardware-centric platforms. This presentation will also highlight some of the challenges applying systems engineering in an industry where most stakeholders are unfamiliar with systems engineering processes.

Tim Heath is the Director of Engineering at Premier Stainless Systems in Escondido, CA. He has a BS in Mechanical Engineering Technology from Southern Polytechnic State University and a MS in Systems Engineering from Johns Hopkins University. Tim also acquired his CSEP certification in 2011.

Prior to joining Premier Stainless, Tim worked as a Mechanical and Systems Engineer at Northrop Grumman for 9 years, was the Head Brewer at Fairhope Brewing Company for 2 years, and a consultant for Diamondback Brewing Company.

Speaker: Tim Heath

Cleveland-Northern Ohio Chapter

Joe Stevens, jstevens1437@yahoo.com

NCOSE Cleveland-Northern Ohio (C-NO)is supporting a regional upcoming event in northeast Ohio at Kent State University (Ashtabula, US- OH branch), The Ed and Carol Murray Social Justice Seminar; "Understanding Regional Complexity - Advocating, Creating and Transporting Change Across the Nexus. "This event will bring together a panel of international scholars, academics, public sector experts, and advocates from healthcare, utilities, government, and public policy to explore how to work together, understand, and address regional nexus issues—particularly in Northeast Ohio.

Supported by

KENT STATE UNIVERSITY | Division of Research and Sponsored Programs — INCOSE — KENT STATE UNIVERSITY | Regional College

One of our chapter members and past presidents, Mr. Carl Dister, is involved working closely with a couple of social engineering researchers by offering his expertise in systems engineering through his application of critical thinking. In addition, the C-NO Board of Directors approved funding a seminar registration for Ms. Preya Bhattacharya, a PhD Candidate in the Department of Political Science at KSU. Preya's research concerns the Economic Empowerment of Women. She studies the impact of microfinance programs in post-conflict economic reconstruction. Preya eagerly looks forward to attending the Complexity Seminar, to learn about methodologies applicable to her research. In turn, Preya will present her perspective on the event to our chapter members at a future chapter meeting. For more information, please go to the following link, The Ed And Carol Murray Social Justice Seminar.

Sector Updates

EMEA

EMEA Sector Systems Engineering Conference

Sven-Olaf Schulze, sven-olaf.schulze@gfse.de

Call for submission for EMEASEC 2018 5-8 November 2018 in Berlin

Mark your calendar for the bi-annual EMEA Sector Systems Engineering Conference (EMEASEC) in 2018. It is the premier conference of systems engineering and related disciplines in Europe, the Middle-East, and Africa (EMEA). The conference gives industry, organizations, educators, researchers, and government the opportunity to showcase cutting-edge practice and research. EMEASEC 2018 provides the opportunity to network with professionals from many domains in EMEA.

The conference will start with a tutorial day on Monday, the 5th of November, which will be followed by the two days EMEASEC2018/TdSE2018 conference (EMEASEC 2018 will be combined with the Germany Systems Engineering Conference (TdSE2018)) with paper presentations and other exciting topics. On Thursday, the 8th of November, we will offer some technical tours.

Please submit papers and tutorials that fall within the practice of systems engineering and associated disciplines until 25 May 2018. The theme of the conference, Systems Engineering – Connecting the World, focuses on the application of systems thinking and systems engineering principles and processes on complex problems, such as the Internet of Things, Industry 4.0, digitalisation, sustainability, connected home, connected drive, and autonomous systems. Further proposals are welcome.

Acceptable submissions:

- Research papers, following the rules and requirements for a professional research paper

- Industrial papers, which are reports from practical systems engineering application providing lessons learned, tips and tricks, and other valuable benefits for the participants where an easier review process is conducted

- Tutorials from educators and experienced systems engineers

Learn more about the event here at https://www.incose.org/emeasec2018.

Asia-Oceania

Compiled by Ramakrishnan Raman,
ramakrishnan.raman@hotmail.co.uk

India Chapter

The India Chapter held the sixth Pune Circle event on 18th January 2018 at the TATA Research Development and Design Centre in Pune, IN. Many INCOSE members from the Pune and Mumbai areas attended the event. The event covered talks about different topics related to systems engineering.

The first talk was from Lalit Kathpalia on "Developing a System Dynamics Simulation Model for Indian IT Industry." Dr. Swami delivered the second talk on an INCOSE project titled "Conceptual Model of Systems Engineering." The final talk, delivered by Dr. Anand, was on "System Architecting at TCS."

Chapter Leadership - Planning Meeting

The INCOSE India Chapter had a planning meeting on the 13th of January 2018 at Pune by INCOSE India Chapter leadership. All the members from different locations within India gathered in Pune to brainstorm and plan activities for the India Chapter in the year 2018. The members came up with list of activities related to programs, membership drives, and communication to name a few.

Asia-Oceania

India Chapter
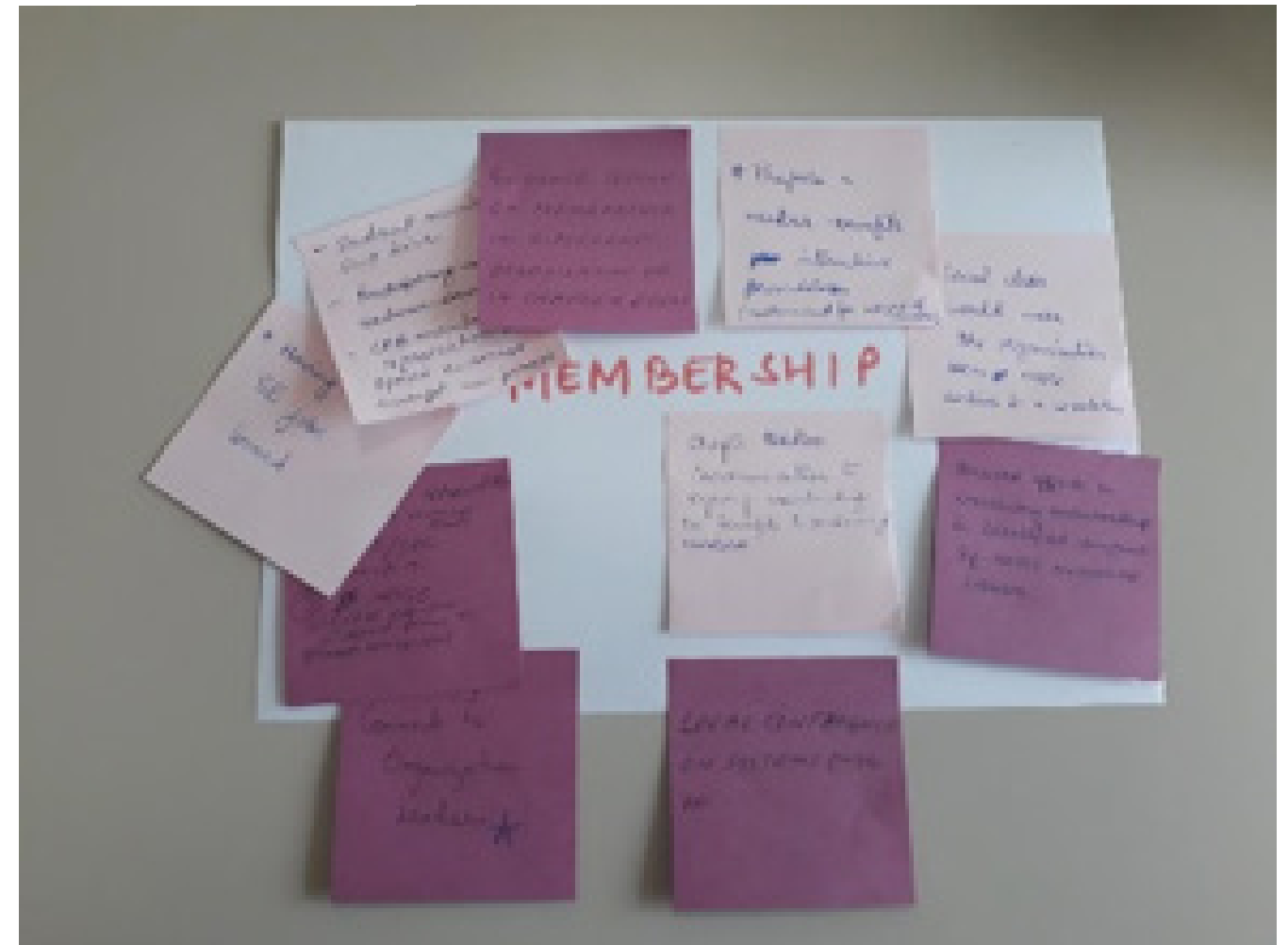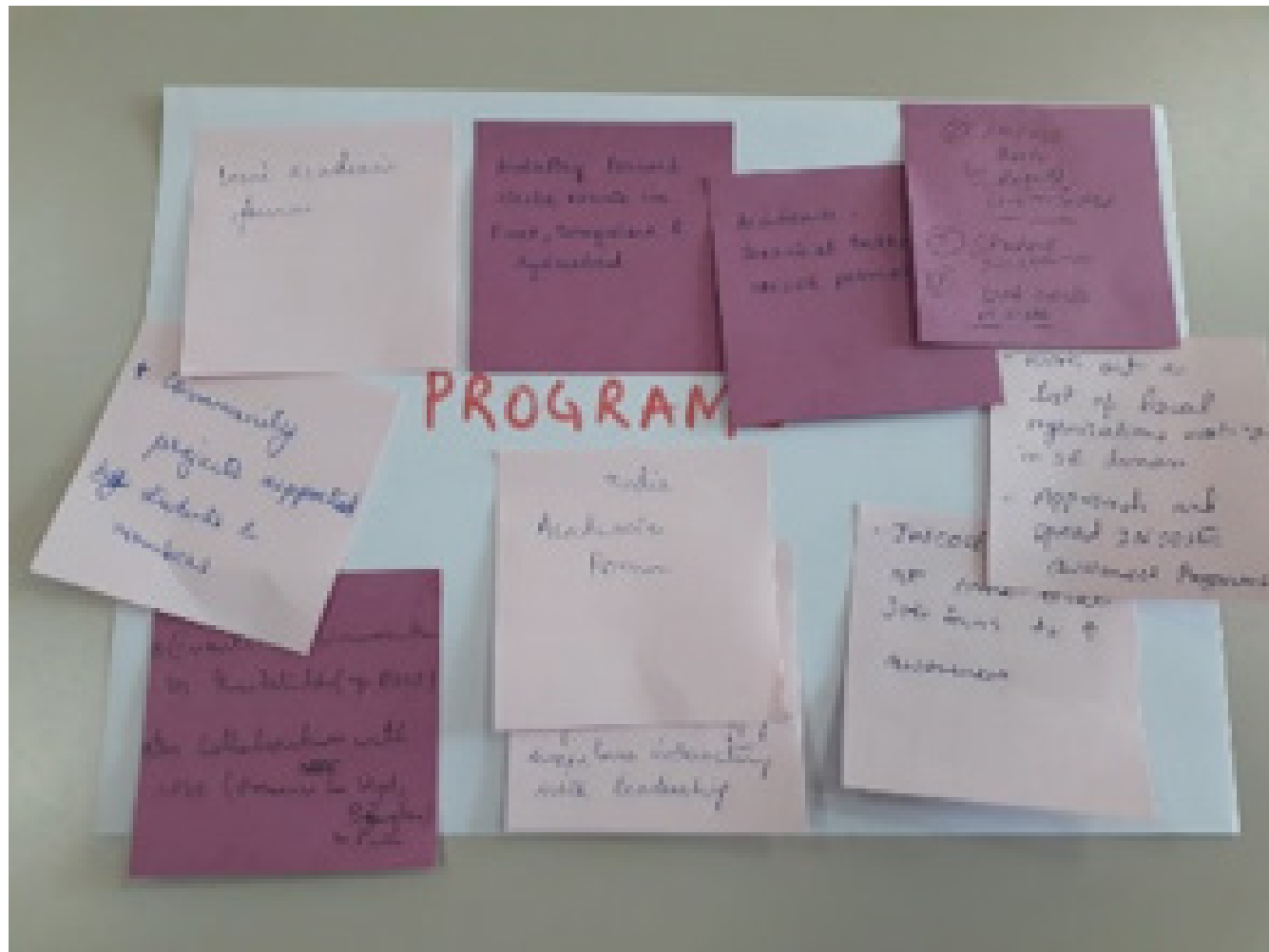
Congratulations to Ramakrishnan Raman, ESEP

The INCOSE India Chapter wishes to congratulate Ramakrishnan (Ramki) Raman for earning his certification as an INCOSE Expert Systems Engineering Professional (ESEP). Ramki is the second ESEP from India, and the eighth ESEP from Asia Oceania. The India Chapter has more than sixty certified systems engineering professionals in total (ASEP, CSEP, and ESEP).

Singapore Chapter

Tour of Mediacorp - organized by the Singapore Chapter

On 11 Dec 2017, the INCOSE Singapore Chapter organised a tour of the new facilities of Mediacorp, the national broadcaster and largest media provider in Singapore. The Mediapolis facility is a massive complex that houses all production facilities for the broadcaster's seven television and twelve radio channels, produced in the four official languages of Singapore: English, Chinese, Malay, and Tamil. Mediacorp won the Asian Television Award for recent years, as well as other accolades.

One of INCOSE's objectives is to advance the awareness and practice of systems engineering, especially in its inter-disciplinary and complete lifecycle approaches in solving problems. Mediacorp's operations cross a diverse spectrum of domains from engineering to performing arts, and hence the INCOSE delegation benefited a lot from this tour.

CALL FOR PROPOSALS
WESTERN STATES REGIONAL CONFERENCE
September 20-22, 2018 – Ogden, Utah
Proposal Deadline March 31, 2018

The INCOSE western regional chapters will host the Western States Regional Conference (WSRC) of the International Council on System Engineering (INCOSE) on Thursday through Saturday, September 20th-22nd, 2018, at the Orbital ATK Conference Center located in scenic Ogden Canyon in Utah (42 miles or 50 minutes from Salt Lake International Airport).

The WSRC Program Committee invites you to improve the theory and practice of Systems Engineering by submitting a proposal for a presentation, panel discussion, workshop or tutorial on the conference theme:

SYSTEMS ENGINEERING OUT W.E.S.T.

Workplace • Environment • Sustainment • Technology

WSRC will feature keynote presentations from SE thought leaders, presentation from SE practitioners and academia, panels on important SE topics, and world-class tutorials from SE experts. WSRC will also feature an INCOSE SE Professional Development Day (SE-PDD), a virtual extension of the conference, with featured sessions broadcast to several satellite sites. Some accepted submittals may be invited to participate in the SE-PDD track.

Proposals for **presentations** of half-hour length are sought that will help improve systems engineering. Format for this conference is presentation only, no papers.

Proposals for **panel discussions** are sought on significant or controversial subjects in systems engineering, about which different points of view are held. Proposals for panel discussions should nominate knowledgeable, eloquent, polite members who can forcefully and succinctly advocate different positions on the panel topic.

Proposals for **workshops** or **tutorials** (half- or full-day) are sought that will teach systems engineering skills, tools, techniques, and knowledge. Proposals for tutorials should include a course outline and specify what will be gained by those attending.

Suitable Topics
- Development of Resilient and Sustainable Systems
- System-of-Systems Resiliency
- Security (cyber, physical, workplace, etc.)
- Agile Systems Engineering
- Model-Based Systems Engineering (MBSE)
- Systems engineering across the enterprise
- Cross-Industry Systems Engineering Interaction
- Requirements Management
- Risk Management
- Systems thinking
- Validation and Verification
- Other concepts and processes that fit the Conference Theme.

Submission Guidelines

All proposals will be submitted through the WSRC EasyChair website
https://easychair.org/conferences/?conf=wsrc2018, and must include:

- Title
- Abstract which clearly and concisely describes the subject (500-word limit). Abstracts should summarize the proposed presentation perspicuously to entice conference participants to attend and provide enough detail for evaluation
- Presenter's or instructor's name, affiliation, contact information, and brief biography
- Additional presenters or instructors, if any
- For panels: why the topic is relevant; nominations for panel participants, summary of position statements
- For workshops or tutorials: Benefit for tutorial attendees; top-level learning objectives; tutorial outline; proposed duration (half- or full-day). 1000-word limit.
- Presentation/tutorial/panel content will be submitted after proposals have been accepted

Each accepted submittal will receive one $50 registration discount. At least one presenter/instructor and the panel chair and all panelists must register for the conference and pay the applicable registration fee.

Presenters grant INCOSE the right to record, publish, and distribute their presentations, including audio, video, and slide-show content, unless expressly denied in writing. The INCOSE IP release form is available on the WSRC website.

Important WSRC Proposal Dates

23 February 2018	Call for proposals opens
31 Mar 2018	Call for proposals closes
30 April 2018	Proposal notifications – Accept or Reject
26 May 2018	Deadline to submit presentations for review
9 June 2018	Presentation feedback provided
30 June 2018	Final presentation submittal deadline
20-22 September 2018	WSRC

Session Duration

Time your presentation for delivery in 30 minutes or less. Session Chairs will not permit overruns.

Clearances

Authors and presenters must obtain all necessary authorizations and clearances from their organizations, prior to the start of the conference. Presentations shall be unclassified and cleared for release to the public.

Questions?

Please contact: Paul White, WSRC Chair, at **paul.white@kihomac.com** or Michael Leith, WSRC Technical Program Subcommittee Chair, at **Michael.Leith@gd-ms.com**

WSRC Website

https://incose-wsrc.eventbrite.com

Working Group Updates

Oil and Gas WG

Cindy Chen, c.chen@shell.com

INCOSE Technical Director, Mike Celentano, presents the "Achieving the Systems Engineering Vision" award to Mia Zager, Oil & Gas Working Group co-chair

The INCOSE Oil and Gas Working Group (O&G WG) aims to advance systems engineering in the oil and gas industry in order to enhance the industry ability to adapt to rapidly changing environments and energy transformation. The O&G WG was honored to receive the award for "Achieving the Systems Engineering Vision" at the 2018 INCOSE International Workshop (IW) in Jacksonville, US-FL (20-23 January). This award was presented to the group for broadening the INCOSE portfolio into the non-traditional domains and to recognize the amazing progress the WG made in a short period of time.

Co-chaired by Mia Zager (Shell) and Phil Schoonover (BHGE), members initiated the O&G WG in July of 2016. In eighteen months, it has grown to include twenty active organizations, with more recent activity from Total and Stat Oil following the 2017 EMEA Conference, and welcoming Flowserve and Bechtel as the newest members at the 2018 IW. The group has held O&G sessions in five INCOSE international conferences, in addition to partnering with aerospace colleagues in the INCOSE Texas Gulf Coast Chapter to host a sold-out 2017 conference in Houston, US-TX. In 2018, the group hopes to expand its involvement in the EMEA region and establish connections in the Asia-Oceania region to reach the oil and gas industry in every region of operation.

In addition to Shell and Baker Hughes GE, other working group participants include Technip FMC, Barrios Technology, Jacobs, TransOcean, BP, and IBM

The Oil and Gas Working Group is focused on the following activities in 2018:

- Value of Systems Engineering – Produce a video series targeting the value of systems engineering, and systems engineering in O&G

- Requirements Development and Management – Develop an open source requirements coaching tool with a maturity index

- Standards as Data – Pilot the second project with the American Petroleum Institute to convert standards from prose to requirements and introduce the transformation of standards from prose to requirements with more standards bodies (IOGP, ASTM, DNV)

- Systems Engineering Competencies – Finalize a systems engineering competencies frameworks for the O&G Industry and explore systems engineering mentoring and promoting systems engineering certification in O&G

- Increase involvement with the Offshore Technology Conference

Newly proposed subgroups:

- Data Standards & Exchange - Design and deliver digital solution-agnostic data exchange for the implementation of systems engineering across the O&G value chain and lifecycle

- Architecture subgroup - Map and link the relationships between the forms and functions across the supply chain

Please join us at the second annual Texas Gulf Coast Chapter Aerospace and Oil & Gas INCOSE Conference in Houston, US-TX on 3 May 2018, during the Offshore Technology Conference! Registration: https://www.eventbrite.com/e/second-annual-incose-texas-gulf-coast-chapter-systems-engineering-2018-conference-tickets-43184098802

More information can be found on the O&G Working Group's website, http://www.incose.org/ChaptersGroups/WorkingGroups/Application/oil-and-gas.

Please contact co-chairs Mia Zager (Mia.Zager@shell.com) or Phil Schoonover (Philip.Schoonoverii@bhge.com) if you are interested in getting involved.

Systems Science WG

Swaminathan Natarajan, swami.n@tcs.com

Anand Kumar, anand.ar@tcs.com

Systems Science Working Group New Project - A Conceptual Model of Systems Engineering

The Systems Science Working Group started a new project to devise a conceptual model of systems that is based on key principles and concepts from systems science. We aim to base this model on key mathematical theories and constructs. We will also take advantage of some key ideas from systems philosophy as captured in the Systemology Framework (another project within the working group).

While systems engineering has strong empirical guidance in the form of practices, methods, and standards, it is lacking theoretical foundation in comparison to other engineering disciplines.

Working Group Updates

One approach to address this problem is based on the simple insight that solutions in typical engineering disciplines depend on knowledge in their own discipline, but creating a good systems engineering solution depends on bringing together knowledge from many disciplines. As a result, to create theoretical foundations for systems engineering, it is necessary to inquire into how knowledge domains come together in systems.

This inquiry led to a distinction between domains that carry knowledge about types of wholes versus domains that carry knowledge about aspects. Theoretical knowledge is built up in aspect domains, while type domains carry knowledge about how various aspects come together in a whole, and how wholes relate to each other. In such a case, systems engineering can be looked at in terms of four worlds: real, systems models, type knowledge, and aspect knowledge. Creating an engineering solution involves using type world knowledge to synthesize various aspect solutions, using systems knowledge to ensure compositionality, implementing the solution in real world, and closing gaps between model and reality.

We are in the early stages of this exploration but would appreciate anyone who would like to join us in this journey. Please contact either of us for more information. We look forward to presenting our results at upcoming INCOSE events.

Academic News

Wolter J. Fabrycky, woltfab@vt.edu

Ariela Sofer, asofer@gmu.edu

Systems Engineering Doctoral Dissertation Showcase Recognitions at INCOSE IW 2018

Hosted by the Omega Alpha Association – the International Honor Society for Systems Engineering

Complete information about the Omega Alpha Association (OAA) may be found at www.omegalpha.org

During its tenth anniversary meeting in 2016 in Edinburgh, SC, the Omega Alpha Association Board of Directors authorized establishment of a Systems Engineering Doctoral Dissertation Showcase (SEDDS). Its legacy was a charter cohort formed from the five exemplary doctoral programs identified during 2011-12.

Three dissertations from three countries received the exemplary

Academic News

dissertation designation, and these are showcased under Exemplary Systems Engineering Doctoral Dissertations on the Omega Alpha website. The authors, universities, and home countries were Simone D'Amico from the Technical University of Delft, NL, Andres Hein from the Technical University of Munich, and Adam Ross from the Massachusetts Institute of Technology, US.

In 2017, Omega Alpha added three more dissertations to SEDDS. The OAA Board recognized two dissertations as exemplary and gave another honorary recognition. Exemplary Dissertation Awards went to Dr. Alejandro Salado from the Stevens Institute of Technology, and Dr. Yaniv Mordecai from the Israel Institute of Technology. Honorary recognition went to Cesare Guariniello of Purdue University. Omega Alpha held the award ceremony at the 2018 IW in Jacksonville, US-FL. The pictures below show the board officers offering congratulations to the exemplary dissertation awardees.

Omega Alpha's founding principal in 2006 was to "think about the end before the beginning," from the philosophy of Leonardo da Vinci. This is the motto of the International Honor Society for systems engineering as chartered in Virginia, US in 2006.

Omega Alpha promulgates the interdiscipline of systems engineering as defined by INCOSE, "An interdisciplinary approach and means to enable the realization of successful systems."

Omega Alpha is now soliciting applications, nominations, and declarations of intent to participate in the 2018 showcase. Guidance and on-line application capability are available on the OAA web site.

OAA Board chairman Cihan Dagli centered with the two exemplary dissertation awardees, Dr. Yaniv Mordecai (left) and Dr. Alejandro Salado (right). Pictures by Yaniv's father, Ron Mordechai

The Systems Engineering Doctoral Dissertation Showcase will continue to seek two exemplary dissertations each year, but both will not be awarded to individuals from the same country. The OAA Board has again authorized a $5000 cash award for each exemplary dissertation, together with a plaque incorporating the official OAA medallion.

OAA Board and associates, left to right, back to front, secretary/ treasurer Dr. Elizabeth McCrae, William Schindel, Cihan Dagli, Dr. Yaniv Mordecai, Stan Weiss, Donna Rhodes, and Dr. Alejandro Salado

Academic News

Upon recommendation of the evaluation committee, and at the discretion of the OAA Board, dissertations chosen for final evaluation will be considered for honorary recognition.

The board identified one such dissertation in 2017 and awarded and authorized a $1000 cash award. Omega Alpha would like to secure cash awards from non-OAA benefactors for expected honorary recognitions going forward.

INCOSE Foundation

John Ross Snoderly,

snoderly1@verizon.net

Join The INCOSE Foundation Board of Directors

The Board of The INCOSE Foundation is the keeper of the mission and engaged in the management of the affairs of the foundation, including increasing its donor base. Here is how our board chair states it:

Anticipate the future: It is our goal to support programs that help The INCOSE Foundation fulfill our place in making this a better world to live in and that will continue to earn the confidence that our flagship donors have placed in us to promote the best practices of systems engineering. The future is extraordinary and challenging – and, with your help, we will continue to meet the challenge.

The INCOSE Foundation bestows several scholarships and grants annually; most recently, nearly twenty working groups and chapters received small grants to pursue projects that advance systems engineering.

The qualifications for board membership include having a keen interest in furthering systems engineering by supporting existing activities and seeking out others with the same commitment, willingness, and ability to contribute to the future health of The INCOSE Foundation.

For more information, please contact Holly Witte, The INCOSE Foundation Managing Director, holly@univmgmt.com.

INCOSE Foundation

INCOSE Foundation Call for 2018 Alexander Kossiakoff Award Submissions

Holly Witte,

holly@univmgmt.com

The INCOSE Foundation has opened its cycle for the 2018 Alexander Kossiakoff Award sponsored by Johns Hopkins University. This prestigious award recognizes and encourages promising applied systems engineering research by students in a masters or doctoral program. The award carries a $5,000 grant to the student. The student will also receive recognition and a plaque at the Annual INCOSE International Symposium (IS) in the summer.

We are certain that there may be worthy applicants known to INCOSE members through your professional endeavors or through your volunteer work in INCOSE Chapters.

Here are the specifications:

- Rigor and creativity of proposed applied research

- Potential application to Applied Physics Laboratory systems engineering interests

- Strength of resume and biography

- Strength of academic recommendations

- Additional attributes noted in the applicant's materials that go beyond the application requirements.

Application Process:

- Each applicant must submit an application package to include a complete resume/vitae, a brief biosketch, a description of the study/research areas of interest (at least 3-4 pages), and a discussion of the contribution and expected outcomes that will benefit applications of interest to the Applied Physics Laboratory.

- Applicants must have two faculty references submit recommendation letters on their behalf.

- Applicants can submit completed applications and faculty references

beginning 1 January and no later than 1 June of each year. (The award will be given at the annual INCOSE IS).

Eligibility Requirements:

- Applicant must be a U.S. citizen and an admitted student in a masters or doctoral program in systems engineering at an accredited university. (Although the student must be a U.S. citizen, you may know someone who qualifies even if you are in a country outside of the U.S.)

- Applicant seeking the award must submit an application

- Applicants may not receive more than one award.

Contact Holly Witte, The INCOSE Foundation Managing Director, for additional information at holly@univmgmt.com. Those interested can access applications here.

The INCOSE Foundation is a charitable organization with the stated goal of advancing the development and image of systems engineering through funded scholarships, research, and international forums. The Foundation received its 501(c)(3) exempt status from the IRS on 30 September 2005. This enables all U.S. donors to claim a charitable deduction on their annual income tax submissions. The Foundation is exploring ways in which non-U.S. contributions can be solicited in ways that benefit individual donors.

The Foundation is a separate legal entity from INCOSE but both organizations are closely aligned in philosophy, strategic directions, and values. The Foundation has its own separate Board of Directors, several of whom are also elected INCOSE Board members.

28th **annual INCOSE**
international symposium

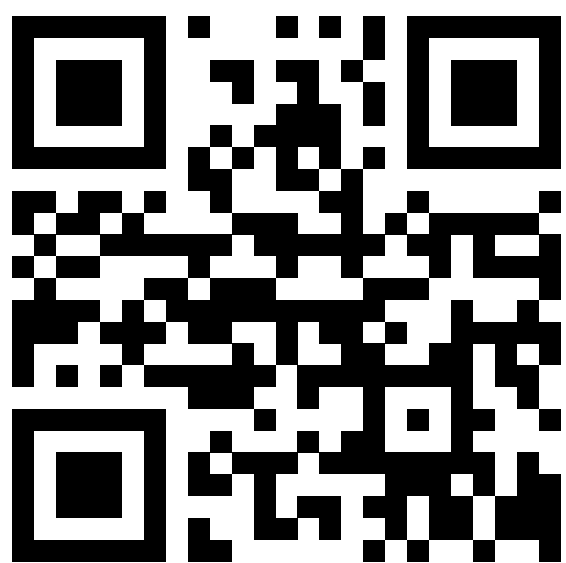## Washington, DC, USA
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Learn about state–of–the–art methods and essential skills for Systems Engineers.

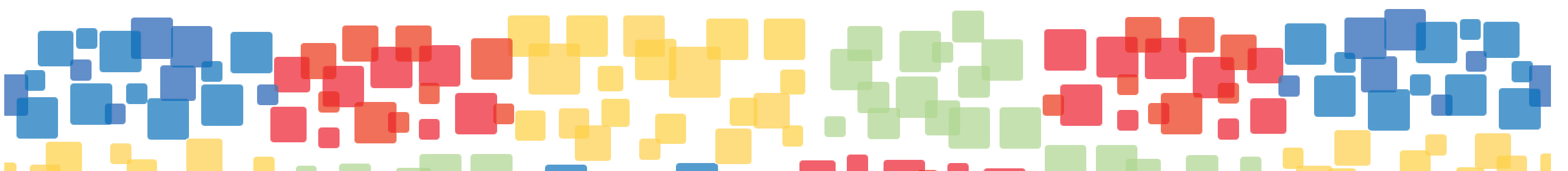Find out how people are making a difference with Systems Engineering.

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Why should you sponsor?

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- Put a spotlight on your organisation's competency in Systems Engineering

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- Develop sustainable business relationships
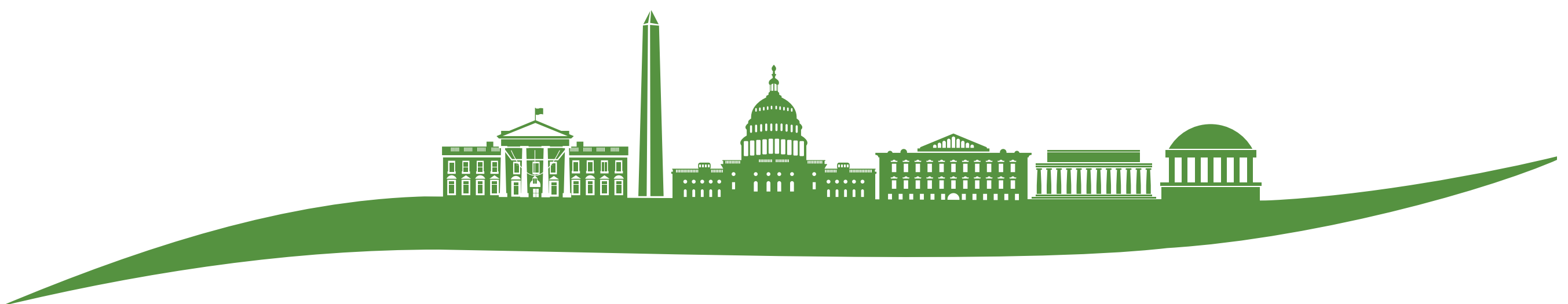
Visit **www.incose.org/symp2018** and contact us **TODAY** - The IS2018 Organizing Team
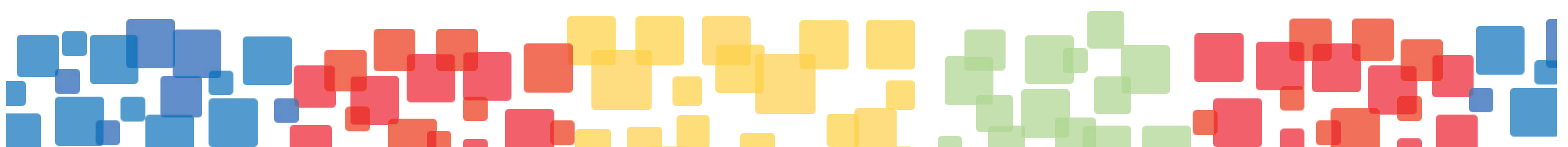
EWLSE Update

Alice Squires, ewlse@incose.org

Environmental Enablers and Inhibitors to Leadership in Systems Engineering

The Empowering Women as Leaders in Systems Engineering (EWLSE) welcomes men and women who are passionate about raising awareness and advocating for women as leaders in systems engineering. At the INCOSE IW 2018, EWLSE completed a leadership exercise on environmental enablers and inhibitors to leadership in systems engineering. We also welcomed presentations from David Long on the INCOSE nomination and elections process and from Don Gelosh on the INCOSE Technical Leadership Institute (TLI), shared what we found empowering in our careers, reviewed the state of EWLSE, and presented two Calls from EWLSE. The first call is for authors and editors for a book of "Letters To My Younger Self: How Systems Engineering Changed My Life". The second call is for abstracts for articles related to diversity in systems engineering in practice (for a dedicated INCOSE *INSIGHT* edition in 2019) or research (for the INCOSE *Systems Engineering Journal*). Please see the two calls immediately following this email.

For the EWLSE leadership exercise we formed small groups to discuss environmental enablers and inhibitors to leadership in systems engineering. The first statement heard from the group discussion was: "All I have are inhibitors." Once the groups completed their discussions, each person wrote down on sticky notes their top personal environmental enablers and shared them. Five clear groupings for environmental enablers for leadership emerged (the number of each type are in parentheses – please note some responses address more than one):

1. Positive relationships (10): peer/network/colleague (7), boss (2), men (2), trust (2)

2. Opportunities for learning, training, education, gaining knowledge and skills (8)

3. Career opportunity (8): rotation of job (3), open leadership positions/succession planning/need for resources (3), organization buy-in to systems engineering (1), organization need to understand systems engineering (1)

4. Encouraged by others (5): female mentors (3), leaders (2)

5. Organizational culture (5): mutual respect (1), public recognition (1), culture (1), innovation (2), empowerment (1)

Next people wrote down then their top environmental inhibitors to leadership. These were grouped as follows with "lack of organizational support" as a super category:

1. Lack of organizational support (17):

- bias/unconscious bias (6): bias (5), unconscious bias (2),

- exclusionary behavior / lack of promoting women into leadership (5)

- lack of learning opportunity (3)

- unclear career progression (2)

- control instead of lead (1)

2. Organizational culture/structure (10): inflexible (1), unappreciative (1), competitive (1), too much talking (1), communication flow (1), ad hoc processes (1), large matrix (1), lack of systems engineering buy-in or understanding (2), initiative overload (1), time/priorities (1)

3. Lack of diversity (5): in organization (1), limited view (1), in domain (1), only woman (2)

4. Negative Relationships (4): manager/management (2), other women (1), customer (1)

The group will investigate individual enablers and inhibitors at our next gathering and then develop strategies for moving forward.

David Long shared a personal experience relating how his INCOSE leadership journey started with his involvement in INCOSE (since 1997) and included an initial loss of a local INCOSE election. His passion and interest in INCOSE, in part demonstrated by the simple act of running for a local leadership position, caused a member of the local leadership team to reach out to David and ask him to serve in another supportive role. David later successfully ran for and was elected President of the local chapter. His beginning experience of putting himself out there clearly set forth a series of events that resulted in David eventually being elected to and serving as INCOSE President from 2014 to 2015, and he continues to serve and lead in INCOSE today. The overall takeaways for pursuing leadership roles were the willingness to serve above all else, how persistence plays a role in securing leadership opportunities, and the importance of others purposely reaching out to those who demonstrate leadership qualities and supporting them in their leadership journey. David also mentioned that the board positions for INCOSE, with the exception of the role of President-elect and President, do not require the candidate to hold leadership positions at the local and regional levels within INCOSE; rather other qualifications are important such as experience running a small business or a non-profit can support the Treasurer role, etc. It is recommended to review for any INCOSE leadership positions, the position description and requirements, in order to understand what is expected and required for those seeking to serve through a leadership role within INCOSE, and to send any questions to the nominations and elections group serving those positions.

Don Gelosh reviewed data on the first four cohorts of the INCOSE Technical Leadership Institute (TLI) and reviewed the process for INCOSE members to apply to the fifth cohort of the TLI. As a strong showing of support, all of the INCOSE TLI instructors, Don Gelosh, Mike Pennotti and Patrick Godfrey, and TLI graduate Suja Joseph-Malherbe, attended the presentation and participated in the question and answer session. The next set of

EWLSE Update

INCOSE TLI candidates need to send in their completed packages, including a nomination letter from an INCOSE leader that meets the requirements set forth by the INCOSE TLI, by midnight, U.S. PST today,, March 15, 2018. For those interested in nominating a candidate, or being a candidate, please obtain the latest requirements from the INCOSE TLI instructors directly.

In summary, EWLSE members are empowered by others – by being able to set up an environmental where others can flourish; by supporting others; by mentoring or being mentored; by being a role model to other women including younger women and children; by their ability to be a positive influence to others; by their spouses and family; by being among strong encouraging people; by leaders and colleagues who trust in their abilities to deliver high quality work; by watching their students grow, flourish, and make a difference in the world; and by EWLSE. EWLSE members are also empowered by the systems approach – using systems engineering to solve complex problems and improve the world, teaching systems engineering to others; having a strong technical understanding; and by the synergy of strong technical products and good teams that come together to succeed. EWLSE members are empowered by interesting and challenging work; by having the freedom to work on what interests them; by greater purpose for work; by completed projects and happy stakeholders (and knitting ☺); and by personal success. EWLSE members are empowered by self-esteem as defiance against stereotyping; by confidence and bravery to allow one to act despite challenges; by love, smiles, and science; and by feeling respected and appreciated.

The meeting ended with a scheduled one-hour period of informal networking starting at 5pm with snacks and drinks, where members stayed on and networked well past the original hour and some formed groups and went on to other activities while some remained and continued socializing.

Interested in joining EWLSE? We welcome you! To become a member of EWLSE please log into your account on incose.org, go to Profile Home and add "Empowering Women" to your Committees/Working Groups. Are you interested in being matched to a systems engineering mentor who is standing by ready and waiting to be connected with you? Please start by emailing ewlse@incose.org with your interest.

IT Update

Bill Chown, cio@incose.org

We are very pleased to announce the appointment of two new assistant directors in the IT team, Robert Edson and Angela Robinson. We will be working on a comprehensive strategic plan for INCOSE IT, but I would like to share with you some of our key initiatives that we are currently working on for 2018.

Expanded Online Store with Wider Product Range

This will soon include differentiated sections for INCOSE developed products, member contributed products, and relevant external systems engineering products that are available for purchase through an external site.

Member Data Management and Privacy Support

In order to protect our members' personal information, and additionally to comply with new European General Data Protection Regulation (GDPR) personal data policies that will come into force in May, we are fully reviewing our policies and practices around the capture, storage, and use of personal information. Personal data is increasingly exposed through deliberate action, but also by inadvertent lack of care and consideration. We will be making recommendations to all our membership, as well as applying the best possible security (without preventing your participation) across INCOSE.

Increased Automation of Membership, Certification, Collaboration, and Mailing Processes

We are continuing a process of improving online access and easy management of key capabilities so that members, chapters, and working groups get the capabilities needed for participating in INCOSE.

You can tell us about your specific needs and favorite challenges via the help pages in INCOSE Connect.

IT Team and Resources

In addition to recently appointing our new assistant directors, we will be establishing professional IT help that we will progressively make available for all those who need it. If you would like to join our team in volunteer, assistant director, or professional capacity, please let me know.

EWLSE Call for 'Interest' in Letters
Written to Your Younger Self

Empowering Women as Leaders in Systems Engineering (EWLSE) invites all systems engineers to consider submitting a letter written to your younger self for an upcoming INCOSE EWLSE Book titled: **"Letters To My Younger Self: How Systems Engineering Changed My Life"** targeted to the systems engineers of the future. The goal of the book is to serve as an engaging and enlightening resource for those early in their education or career considering engineering and systems engineering as part of their future career path.

INCOSE EWLSE plans to produce a book targeted to secondary and higher education students and young professionals with contributions from our global membership and interested parties, that contains an equal number of letters from men and women in systems engineering from around the world – letters written to their younger self about lessons learned from pivotal moments in their systems engineering journey that changed their life making them the systems engineer they are today. These pivotal moments could include challenges, events, overcoming obstacles, whatever you are passionate about sharing that had an impact on your systems engineering journey. Authors will need to provide permission for letters to be published and the book is intended to represent a diverse set of individual viewpoints. Specific criteria for what we would like included in the letter and limits on length and other guidance will be forthcoming.

Please express your interest in writing a letter for the book and/or serving as an associate editor by May 30, 2018 to be considered for Volume 1, by sending your name and a description of your interest to ewlsepubs@incose.org. We will share additional criteria for associate editors and first-pass letter due dates to those who express an interest in being authors on, or shortly after, June 5, 2018.

Join EWLSE!

We invite men and women to join EWLSE to advocate for women as leaders in systems engineering. Sign-up and to be added to the email distribution list is through www.incose.org:
- Login to your member account
- Select 'Profile Home'
- Scroll to 'My Committees/Working Groups' and select 'Browse/Join a Working Group'
- Select 'Empowering Women' on the right
- Scroll down to Committee Tasks and select 'Join this Working Group'
- You will now also have access to the Empowering Women area on INCOSE Connect

EWLSE Call for Papers
Diversity in Systems Engineering

Empowering Women as Leaders in Systems Engineering (EWLSE) invites everyone to submit papers focusing on diversity in systems engineering and related systems areas for consideration for publication in INCOSE's journals. We invite articles on any topic relevant to diversity, equity, and inclusion in systems related fields across industry, government, and academia.

We are especially interested in papers addressing topics that show the importance and value of diversity in enabling, promoting, and advancing systems engineering and systems approaches to address complex societal and technical challenges for a better world.

Possible topics include, but are not limited to:

- Effective techniques for overcoming the challenges of working across cultural boundaries
- Global diversity policies, best practices, and lessons learned in creating an inclusive systems engineering enabled workplace
- How building diverse systems' teams produces optimal systems
- How diversity drives innovation and competitive advantage
- The role of diversity, equity, and inclusion in a well-prepared systems engineering workforce
- Institutional considerations or approaches for creating an open inviting systems focused culture
- Broad training in knowledge, skills, and ability that includes traditionally underserved groups
- Case studies demonstrating the importance and value of diversity in systems engineering
- Embracing diversity of thought or approach for resourceful problem solving

EWLSE is working with INSIGHT (INCOSE's journal on state of the practice of systems engineering) toward a dedicated *Diversity in Systems Engineering* themed volume in 2019. The EWLSE publications committee will also be assessing articles for fit within the SE Journal (state of the art of research in systems engineering). Please first send an abstract (up to 500 words) by July 31st, 2018 to receive an invite to submit a paper due by October 30th, 2018. Both should be sent to the EWLSE publications committee at ewlsepubs@incose.org. We welcome topics that fit within either journal.

Papers will be peer reviewed and judged on the degree of innovation, intellectual merit, described outcomes or impact, and relevance to diversity, equity and inclusion in systems engineering and related fields. EWLSE uses double-blind review for papers. Until final papers are uploaded all references to the author(s) and their institution should be redacted in some way. Citations that would identify the author(s) should state, "details withheld for review" in the bibliography. Other formatting and technical guidelines are found here. ALL authors must review the Style Guide and Citation Quick Guide before submission to be certain to meet all requirements.

For more information, contact the EWLSE Publications Committee: ewlsepubs@incose.org

#SocialMediaUpdate

Alan D. Harding,

alandharding@gmail.com

INCOSE is working hard to increase our social media presence so that we can tell the world what we are doing, engage them in our activities, and as a result achieve our vision and mission even more effectively. I'm very pleased with my appointment as INCOSE's first Assistant Director for Social Media, and as part of the Marketing and Communications team (MARCOM). I will be working to organise and amplify the voice of INCOSE via social media.

We already are quite active on Twitter, Facebook, and LinkedIn, but up until now we have not had anyone focus on making sure we get all this information out via the right channels and at the right time so that we get the maximum effect from our activities. Also we would like to link better to www.incose.org and other INCOSE online content such as our videos on YouTube.

Over the next few months I intend to work on a few high priority things, and share as much as I can about that via the Newsletter, our social media channels, and INCOSE Connect. In the short term I aim to:

1. Contact everyone who is managing an INCOSE social media channel right now; if that might be you, please connect with me at socialmedia@incose.org

2. Publish an overall plan for INCOSE use of social media, so we can make improvements, assess what works, and what does not work

3. Create an INCOSE social media catalogue (what channels we have, who manages them, and what their purpose is)

4. Publish good practice guidance on the use of social media for INCOSE

Did you know that in Connect we already have an explanation of the social media channels that we use, and a Social Media Checklist?

If you are managing a Twitter feed, Facebook page or LinkedIn content, or if you are interested in getting involved, please contact me at socialmedia@incose.org so I can add you to the catalogue and to my network of INCOSE social media savvy people.

Call for Nominations

Art Pyster,

apyster@gmu.edu

Editor-in-chief of the Systems Engineering Body of Knowledge (SEBoK)

After more than four years of dedicated service, Rick Adcock will be stepping down as editor-in-chief of the Systems Engineering Body of Knowledge (SEBoK) on 1 July 2018. The Governing Board of the Body of Knowledge and Curriculum to Advance Systems Engineering (BKCASE), which oversees the SEBoK, is soliciting nominations for a new SEBoK editor-in-chief. The SEBoK, which is available at http://www.sebokwiki.org, is a rich and well-structured collection of hundreds of short articles describing the primary knowledge in systems engineering. Authored by hundreds of professionals from the broad systems engineering community, the articles guide the reader to a wealth of additional information. Now in its 10th version since first being published in 2012, the SEBoK wiki is routinely accessed more than 50,000 times per month, making it one of the most widely read resources on systems engineering in the world.

Editor-in-Chief Responsibilities

The editor-in-chief is responsible for the technical content and strategic direction of the SEBoK, oversight of the publication process of the wiki, and enhancing its visibility and impact. Responsibilities include:

• Appointment and management of an editorial board to serve the full scope of the SEBoK

• Overall coordination and processing of submissions, reviews, and final copy editing

• Ensuring timeliness and quality of the SEBoK content

• Ensuring the SEBoK content evolves to reflect the changing nature of systems engineering

• Responding to direction from the Governing Board, which currently has representatives from the International Council on Systems Engineering (INCOSE), Stevens Institute of Technology, and the IEEE Computer Society.

The editor-in-chief position is a voluntary position and a salary is not provided; however, the Governing Board provides a stipend to carry out editorial functions. The editor-in-chief position is for a two-year renewable term beginning 1 July 2018. A professional staff assists the editor-in-chief by managing copyright matters, providing wiki technical support, and offering other support.

Editor in-Chief Qualifications include:

• A demonstrated interest in the broad topics covered by the SEBoK

• A demonstrated record of leadership in scholarship and application in one or more of the topical areas covered by the SEBoK

• Ability to effectively and efficiently manage the editorial process

• Vision of the role of scholarly publication in the electronic age

• Commitment to the workload involved, including by the applicant's employer

Members of the search committee are Art Pyster (INCOSE committee chair), Ariela Sofer (INCOSE), Jon Wade (SERC), and Rich Hilliard (IEEE Computer Society).

Nominations should include:

1. A brief biography (up to 250 words) of the nominee

2. A complete resume of the nominee

3. A brief position statement (less than 500 words) outlining a vision for the SEBoK

4. The names of three individuals who can provide a reference

5. A letter of support from the nominee's employer (waived if self-employed or retired)

Self-nominations are encouraged. Due consideration of applications will begin 1 April 2018.

Please send nominations or inquiries to Dr. Art Pyster, chair of the BKCASE Governing Board and Associate Dean for Research, Volgenau School of Engineering at George Mason University, apyster@gmu.edu.

Call for Nominations: Editor-in-Chief of the INCOSE Systems Engineering Journal

After more than 5 years of dedicated service, Dr. Olivier de Weck will be stepping down as editor-in-chief of the journal Systems Engineering on 1 July 2018. The Board of Directors of the International Council on Systems Engineering (INCOSE) is soliciting nominations for a new editor-in-chief of the journal. Wiley publishes the journal on behalf of INCOSE and is currently in its twenty first volume, with four issues published per year. The editor-in-chief position is for a three-year term beginning 1 July 2018.

Editor-in-Chief Responsibilities

The editor-in-chief is responsible for the technical content and strategic direction of systems engineering, oversight of the publication process of the journal, management of the best papers awards, and enhancing the visibility and impact of the journal.

Responsibilities include:

- Identification of an editorial board to serve the full scope of the journal and oversight of this board

- Overall coordination and processing of submissions, reviews, and final copy editing

- Monitoring of timeliness and quality of publications

- Coordination of special issues

- Collaboration with the publisher to market the journal; promoting the research vision of INCOSE and providing semi-annual reports to the INCOSE Director of Academic Matters.

The editor-in-chief position is a voluntary position and the candidate chosen will not receive a salary; however, the publisher provides a stipend to carry out editorial functions. As part of the editorial board structure, the journal will have three associate editors to whom the editor-in-chief can deputize some functions. The editor-in-chief will appoint the associate editors, who will be subject to approval by the INCOSE Board, and will receive stipends for carrying out their functions.

Editor-in-Chief Qualifications

Qualifications of the editor-in-chief of Systems Engineering include:

- A demonstrated interest in the broad topics covered by the journal

- A demonstrated record of leadership in research, scholarship, and application in one or more of the topical areas covered by the journal

- Prior editorial experience, dedication, and enthusiasm for INCOSE and its journals

- Ability to manage the editorial process effectively and efficiently

- Vision of the role of scholarly publications in the electronic age

- Commitment to the workload involved, by nominee and nominee's work institution

- Membership in INCOSE

Members of the search committee are Cihan Dagli (Missouri Science & Technology), Gerrit Muller, (University College of Southeast Norway), Art Pyster (George Mason University), Donna Rhodes (Massachusetts Institute of Technology), Ariela Sofer (George Mason University, committee chair).

Nominations should include:

- A brief biography (up to 250 words) of the nominee

- A complete curriculum vitae of the nominee

- A brief position statement (less than 500 words) outlining a vision for the journal

- The names of three individuals who can provide a reference

- A letter of support from nominee's employer (waived if self-employed or retired)

The committee encourages self-nominations and will be accepting nominations until 31 March 2018.

Please send nominations to:

Professor Ariela Sofer
INCOSE Director for Academic Matters
Department of Systems Engineering and Operations Research
George Mason University
asofer@gmu.edu

Spotlight ON!

Interviewed by Sandy Young, info@incose.org

Name: Juan Llorens

Title/Organizations: Full Professor at Universidad Carlos III de Madrid and CTO at The REUSE Company

Place of Birth: Bilbao, Spain

Current Residence: Madrid, Spain

Domains: Informatics

Studied in college: Industrial Engineering and Robotics

Year joined INCOSE: 2010

Role(s) in INCOSE: President, Spain Chapter of INCOSE (AEIS, Asociación Española de Ingenieria de Sistemas), Ontology Working Group chair and member, Requirements Working Group member and member of the INCOSE Technical Leadership Institute

Years in systems engineering: 28

1. When did you first hear about systems engineering?

In a meeting with Jean Claude Roussel ten years ago, I did not know that what I had been doing almost all my professional life was systems engineering.

2. What do you want others to know about the Spain Chapter of INCOSE?

INCOSE Spain (Asociación Española de Ingeniería de Sistemas, or AEIS) promotes systems engineering in Spain and increases the maturity of systems engineering in Spanish industries and at the university level.

Even if the country is one of few in the world that completely designs and produces aircrafts, satellites, tanks, warships, submarines, civil and military vehicles, trucks, buses, motorcycles, and medicine, there is a lot of work to do in regards to systems engineering. Spain has some industrial sectors that have a leading position in the world (such as railway, infrastructure, and banking), but these companies usually lack coordinated systems engineering practices. AEIS has a lot of work to do until those entire companies link their systems engineering practices with INCOSE denominations and ISO Standards.

Finally, if we can help, we would be delighted to coordinate our chapter with chapters in America and African Spanish-speaking countries.

3. One of the topics that you are considered an expert in and teach about is "knowledge reuse." Please explain.

Knowledge reuse is the discipline that offers humans different means to classify, find, and apply knowledge (learned information) that was already produced in the past, but for new usage.

The intention is to avoid reinventing the wheel and minimize "blank paper" syndrome. The benefit? A large reduction in costs.

Knowledge reuse allows systems engineers to reuse models, requirements, traceability between requirements, and test cases.

4. You worked with artificial intelligence for database systems in the 1980s. Have you followed its use, and if so, how have you seen it change?

Yes. I started to apply artificial intelligence (AI) to automatically generate hierarchical structures with very little success. Since then, AI has evolved and been applied more widely in the engineering community.

From the initial algorithms based on expert systems and production rules (used for diagnostic and classification purposes) the discipline evolved toward a machine learning approach. Everybody wants to make computers "learn" what humans do or discover patterns around our information, structure, or behavior. However, there is still much to do. Artificial intelligence is, today, really artificial with almost no intelligence.

5. What do you consider to be the biggest advancement in systems engineering to date?

The biggest advancement is, in 2018, its awareness. A few years ago, if you said "systems engineering" to a field engineer outside aerospace and defense, he/she would think you were trying to describe Fourier and Laplace transforms. From being only a subject inside defense and aerospace, systems engineering is now known in almost all the other safety-critical engineering disciplines (automotive, railway, healthcare, and maritime). It is also great to see new domains, such as oil and gas, embrace systems engineering as well.

There is still more to be done to bring systems engineering to infrastructure, banking, the chemical sector, and hopefully, the software community – which has completely disappeared from systems engineering.

INCOSE INSIGHT

William Miller, insight@incose.org

We look forward to you reading the March 2018 issue of INSIGHT.

INSIGHT's mission is to provide informative articles on advancing the state of the practice of systems engineering. The intent is to accelerate the dissemination of knowledge to close the gap between the state of practice and the state of the art as captured in Systems Engineering, the Journal of INCOSE, also published by Wiley.

The focus of the March issue of INSIGHT is origins, alternatives, evolutions, and challenges in model-based systems engineering (MBSE). Previous issues focused on MBSE in December 2009 (Volume 12, Issue 4) and August 2015 (Volume 18, Issue 2), and model-based conceptual design (MBCD) in December 2014 (Volume 18, Issue 4). The application of the Systems Modeling Language (SysML) was predominant in the MBSE and MBCD articles.

INSIGHT editor's first real experience with SysML was in applying an early version of a vendor's tool in 2005 before the Object Management Group (OMG) SysML standard version 1 was finalized. Vendors were marketing tools based on their interpretation of the draft standard. My task was to formalize in the tool a proposed system architecture documented in PowerPoint and Visio. As one might suspect, I found logical errors by visual inspection in the structure throughout the document, usually on different slides. I realized the immediate benefit of structural integrity that the tool provided.

Many have the misimpression that MBSE began with SysML in the mid-2000s. Systems engineers have been diagramming from the earliest days of our discipline, albeit either manually or with purpose built in-house tools. I invite you to look at Goode and Machol (1957); Hall (1962); Machol, Tanner, and Alexander (1965); Chestnut (1965, 1967); Wymore (1967, 1993); and Chapman, Bahill, and Wymore (1992). TRW developed in-house methodologies and tooling for US defense programs to formalize and automate techniques for specifying software requirements: the software requirements engineering methodology (SREM), and corresponding distributed computing design system (DCDS) tool; the Requirements Statement Language (RSL) and the corresponding Requirements Engineering Validation System (REVS). These tools were later commercialized by Ascent Logic Corporation with Requirements Driven Design (RDD-100) and Vitech Corporation CORE and GENESYS.

The March INSIGHT issue begins addressing identified research needs and leveraging the ongoing INCOSE systems engineering transformation as an enabler to the systems engineering of the future initiative we are beginning in 2018.

Feedback from readers is critical to the quality of INSIGHT. We encourage Letters to the Editor at insight@incose.org. Please include Letter to the Editor in the subject line. We hope you continue to find INSIGHT, the practitioners' magazine for systems engineers, informative and relevant.

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Note from the Editor

Lisa Hoverman, newsletter@incose.org

Welcome to the 1st INCOSE Members Newsletter of 2018.

I have had the privilege to see three full INCOSE President's assume leadership, and all lead with integrity and purpose with a mission to promote the growth and quality of our discipline and organization. I want to extend a hearty welcome to Garry Roedler as he steps in to lead us into the Systems Engineering of the Future.

With the International Workshop (IW) just behind us, I hope you enjoy reading the overviews of the great work in systems engineering, networking, and more that occurred in Jacksonville that are throughout this issue. We need to be better and better at telling the stories of our work in systems engineering, especially the work that comes from the talented working groups that gather and focus at each IW and International Symposium (IS), so please, try to take time to read over what happened at the IW, and then make a plan to get further involved at the IS.

The INCOSE Newsletter continues to grow and improve in content to inform our readership on all things INCOSE – both current, upcoming, but also historically. Please use this venue as a start or a highlight to the stories and great work that you are doing in your working groups, on the SEBoK, and then, use this update as a spur to publish your work (and then let us know here!) in one of our three systems engineering journals (The *SE Journal, INSIGHT,* or *JET*). This is how we will move INCOSE and systems engineering further forward.

This upcoming issue of INSIGHT is interesting in that it looks both backward (over 23 years) and forward to the Systems Engineering of the Future. Further, we have the 20th Anniversary of the *SE Journal* happening this year, with a Call for Nominations for a new Editor-in-Chief in this Newsletter.

In this version of the Newsletter we have a terrific opening to his Presidency from Garry Roedler with a strong and pillared vision for his tenure. For the first time ever, we are including a President-Elect's Corner (What is Kerry Up To?!) and a Social Media Update (headed by our immediate INCOSE Past President, now serving as our first Assistand Director for Social Media), updates from other INCOSE administrative areas, updates from each Sector, news from the INCOSE Foundation, notes from the Board meetings in Jacksonville, and a great look at INCOSE conferences and happenings in Academia and around the world.

We are moving into our 4th year of publication and growing with your stellar submissions – but we need to keep improving this newsletter, and our journals, so please aid us. Ask yourself, what can you write, and where can we use it - if you're unsure, ask, we will find a way to use it!

Keep sharing your updates and items of interest with us as we continuously work to improve our communications. I hope that you see some of your suggestions and contributions in this issue. As always, we welcome feedback and contributors.

I end with a sincere note of appreciation to all who led, contributed, and stepped up at the IW, and then following, in contribution to this Newsletter to update members on the many events, and opportunities in INCOSE and to grow and advance your specific areas of systems engineering. I look forward to your upcoming contributions (submission dates below!) as we continue to improve and grow the Newsletter.

Have a great Q2 2018!

Due Dates for 2018 Newsletter:

Q2 Newsletter, GC: May 15; LBN: May 20

Q3 Newsletter, GC: Aug 15, LBN: Aug 20

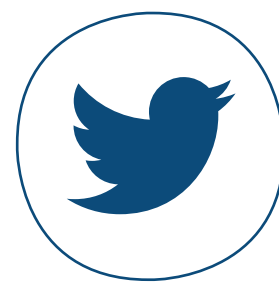Q4 Newsletter, GC: Nov 15, LBN: Nov 20

Who are we? INCOSE is a 10,000+ member organization of systems engineers and others interested in systems engineering. Its mission is to share, promote, and advance the best of systems engineering from across the globe for the benefit of humanity and the planet. INCOSE charters chapters worldwide, includes a corporate advisory board, and is led by elected officers and directors.

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