



INCOSE Chesapeake Chapter

International Council on Systems Engineering

INCOSE Chesapeake Chapter
P.O. Box 535
Laurel, MD 20725-0535

E-Newsletter

March 2017

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Mike Pafford
President

President's Point of View

Another very productive month for the Chesapeake Chapter in February. From 6-10 February, Ellie Gianni, ESEP and the Chapter Past President, in coordination with the Johns Hopkins University Applied Physics Laboratory (JHU/APL), once again hosted a 5-day INCOSE Certification Preparation Course, presented by Certification Training International (CTI). In February the Chapter received word that individual hard work from members Ellie

Gianni, George Anderson, and others, had resulted in the election of JHU/APL Chief of Staff and INCOSE CAB Member, Dr. Ron Luman, as an INCOSE Fellow. For its regular monthly meeting lecture on February 15th, the Chapter welcomed Mark Walker, ESEP and a Chapter Past President. Mark, along with Chuck Manto and John Organek of the Electric Infrastructure Security (EIS) Council, gave another well-attended talk on, "Applying Systems Thinking by the INCOSE Critical Infrastructure Protection and Recovery (CIPR) Working Group for Protecting Our Nation's Infrastructure".

On the 16th, Tony Gigioli, Chapter Treasurer, was awarded INCOSE CSEP Certification. On the 18th, the Chapter Board of Directors (BOD) held a half-day session during which they finalized 2016 Financials and developed the framework for the 2017 Budget. In February, Ms. Cheri Jackson agreed to assume the role of the Chapter Women in Systems Engineering (WISE) special interest group Chair. On the 22nd, WISE held its first guest speaker event, with Monica Mathern, CDR, USN (ret), CSEP, speaking to over 20 attendees on, "Systems Engineering Technical Processes: Lessons Learned".

Chapter member Dave Fadeley, ESEP, represented the Chapter and INCOSE on the Maryland Board for Professional Engineers, and contributed directly to decisions related to Maryland Continuing Professional Competence (CPC) regulations. Several Chapter members continued working with the Johns Hopkins University (JHU) Engineering for Professionals (EP) program to help develop a new Model Based Systems Engineering (MBSE) focus area in the MS in Systems Engineering curriculum. Chapter members also began coordination with the INCOSE Requirements Working Group (RWG) in reviewing the RWG draft document, "Integrated Data as the Foundation of Systems Engineering".

The Chapter and its members will support and sponsor several events in March. On the 4th, Chapter member Don Gantzer will again lead volunteer Special Award Judges at the Anne Arundel County Regional Science and Engineering Fair at North County High School in Glen Burnie, Maryland. On the 7th, Chapter Secretary Craig Tyler will participate in a STEM-related event at Rippling Woods Elementary School in Glen Burnie. On the 12th,

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This is the monthly newsletter for INCOSE Chesapeake, a local chapter of INCOSE International. We are a not-for-profit organization dedicated to providing a forum for professionals practicing the art and science of Systems Engineering in the Northern & Central Maryland & Southern Pennsylvania area.



Chapter member Monica Mathern will provide support to the “2017 Girl Power” Middle School and High School STEM event at the JHU/APL Kossiakoff Center. On the 18th, Chapter members will be acting as Presenters at a STEM event (partially sponsored by the INCOSE Chesapeake Chapter) at Marsteller Middle School in Bristow, Virginia. On 22-25 March, Chapter members will take part in Workshop II of the INCOSE Future Systems Engineering Research Directions Project and the 2017 Conference on Engineering Research (CSER) in Redondo Beach, California. On March 25th and 26th, Chapter member Charlie Welch will lead another team of volunteer Judges at the 2017 Baltimore Science Fair in Towson, Maryland.



www.incose.org/about/Membership/Join

Programs Update



Gundars Osvalds
ESEP
Programs Director

Last month Mr. Loren (Mark) Walker, ESEP, provided us with a serious humanity challenge that needs systems engineering to solve: “How could you survive if the electrical grid power went down for one or more months”? The challenges in protecting the electrical grid need to be addressed, since if it’s breached it becomes serious to humanity, since we do not have the ability to independently fend for ourselves for food, energy, communications, water, or waste management. NO Internet, it’s just not possible to function without it! NO mail, NO gas, NO gasoline, NO food, NO water, NO heat, NO cooling, NO radio, NO television, NO doctors, NO hospitals. THIS SITUATION IS SERIOUS. If you missed his presentation, “Applying System Thinking for Critical Infrastructure Protection and Recovery”, it is available via YouTube youtu.be/RdWhqOW_i-.

The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our Programs Director at programs@incose-cc.org if you would like the opportunity to speak or can recommend someone.



The Women In Systems Engineering (WISE) Chesapeake Chapter Special Interest Group, were given a presentation last month, by an experienced systems engineer, Ms. Monica Mathern, CSEP, PMP, CDR USN (Ret). She shared her experiences in the application of, “Systems Engineering Technical Processes: Lessons Learned”, while working on programs



over the last 20 years. Ms. Mathern is a government technical project lead managing a large Department of Defense development, integration, and implementation project. This

presentation reviewed the technical processes of Systems Engineering as defined in the INCOSE SE Handbook, and related them to real-world scenarios and experiences. It was well received, with many follow-on questions and discussions between audience members, which was an interesting epilog for everyone.



Jim Armstrong
ESEP

This month we have a dinner presentation on March 15th by Mr. Jim Armstrong, ESEP, Industry Professor at Stevens Institute, on the results of his research of systems engineers on how they obtained their technical experiences, "Developing Systems Engineering Expertise: Actions You Can Take". I was among others in our chapter interviewed by Jim to support his research. To reserve your dinner please sign up at incose-cc.org.

Once an engineer achieves technical skills they must also have other skills to support their interaction with the world around them. Next month there will be a presentation on, "Introduction to "Soft Skills" Leadership & Professional Derailment: Lessons for staying on the track", and a workshop, "Leadership & Professional Derailment: Improve "Soft Skills" to Support Your Career Goals".



Teresa Armstrong

Soft Skills include: Communications, Creativity, Adaptability, Collaboration, and Leadership; some of the high-level categories that one can acquire while working on programs, projects, tasks, and while obtaining training to enhance one's value to the organization that one supports. Over the last 20 years Ms. Teresa Armstrong has presented this subject at various national conferences including the Women of Color (WOC), Black Engineer of the Year Awards (BEYA), and National Society of Black Engineers (NSBE). Her current and past consulting/coaching clients include AHC Inc., Maryland Paving, Northrop Grumman Corporation, Marriott International, and the USO. The Soft Skills concepts, acquisition, and execution will be covered following the Chapter dinner and Networking meeting on April 19, and in more detail at the workshop on Saturday April 22. Sign up for these events at incose-cc.org.

Announcements and Events

Chapter Meetings and Lectures

Scheduled Chapter Dinner Meetings are held at the Johns Hopkins University Applied Physics Lab on the third Wednesday of each month unless otherwise noted. The Meeting starts at 6pm (Dinner \$20 for Members, \$25 Non-Members, \$5 extra at the door), and the Free Lecture starts at 7pm. Please complete your Registration at incose-cc.org/registration.

Board of Directors Meetings

Monthly Board of Directors (BOD) Meetings are held at JHU/APL in Building 1, Barton Conference Room the second Wednesday of every month beginning at 6pm and ending at 8pm. The March BOD meeting will be held in the JHU/APL Kossiakoff Center.

The Chesapeake Chapter of INCOSE is proud to recognize the following organizations for sponsoring our endeavors to expanding the understanding and appreciation of Systems Engineering in the local area.



Communications Committee Meetings

Communications Meetings are held the first Wednesday of every month beginning at 6:30pm and ending at 7:30pm. Please contact the Communications Director for more details: communications@incose-cc.org.

Upcoming Events

- **15 March, Developing Systems Engineer Expertise: Actions You Can Take** - A study of top systems engineers has identified actionable information on how their development differs from general practice in talent development. This presentation will provide actionable findings and identify potential changes to our current approach. While much has been written about what systems engineering is, what systems engineers do, what defines competency, and how to teach systems engineering, not much exists on how systems engineering experts develop their abilities. There has been significant research in other fields about how expertise is developed. Now we have similar information about systems engineering that we can use in practice. The Meeting starts at 6pm (Dinner \$20 for INCOSE Members, \$25 Non-Members, \$5 extra at the door), and the Free Lecture starts at 7pm. Please complete your Registration at incose-cc.org/registration.
- **23-25 March, CSER 2017 15th Annual Conference on Systems Engineering Research: Disciplinary Convergence: Implications for Systems Engineering Research**, Refer to the CSER Website for details: viterbi.usc.edu/sae/cser2017.htm.
- **25-26 March, Baltimore Science Fair 2017, POC: Charlie Welch**, Refer to the Website for details: baltimoresciencefair.org/.
- **19 April, Wednesday 6-8 pm, Introduction to “Soft Skills” Leadership & Professional Derailment: Lessons for staying on the track** - The challenges and complexity we face in our professional lives and our organizations can be compounded by the lack of self-awareness and the reality that “soft skills” matter. A “derailer” is a weakness that requires improvement if we are to realize our potential. The presenter will explore four categories of “derailers” that leaders and professionals risk in their career journey. Walk away with an action plan of how you will integrate “soft skills” into your professional career tool kit. This action plan can be further filled out by attending the follow-on Workshop. The Meeting starts at 6pm (Dinner \$20 for INCOSE Members, \$25 Non-Members, \$5 extra at the door), and the Free Lecture starts at 7pm. Please complete your Registration at incose-cc.org/registration.
- **22 April, Saturday 8 am-3 pm, Workshop - Leadership & Professional Derailment: Improve “Soft Skills” to Support Your Career Goals**, The challenges and complexity we face in our professional lives and our organizations can be compounded by the lack of self-awareness and the reality that “soft skills” matter. During this session participants will focus on strategies to avoid trips and traps related to “derailers” that leaders and professionals risk in their career journey. This workshop will provide an understanding and awareness of soft skills and how they are woven throughout your career. Gain practical insights, strategies, tools, and techniques for learning or improving a particular soft skills area you need. Continental Breakfast and Lunch is included, \$100 for INCOSE Members, \$125 for Non-Members. Please complete your Registration at incose-cc.org/registration.
- **24 – 27 April, 11th Annual IEEE International Systems Conference, Montréal, Québec**, INCOSE Track. Details at: incose.org/newsevents/currentevents

This Newsletter is to serve our members and is open to all for contributions.

Do you have an interesting idea for an article?

A review of a new book related to engineering?

Let us know. We'd love to hear about it. It may end up in a future issue of our Newsletter.



- **30 April, Deadline to Apply for INCOSE Chesapeake Chapter Science Technology Engineering and Math (STEM) Scholarships.** Details coming soon to the Chapter Website, incose-cc.org.
- **5 May, INCOSE Texas Gulf Coast Chapter Systems Engineering Conference,** Houston, TX. Details at: incose.org/ChaptersGroups/Chapters/ChapterSites/texas-gulf-coast/chapter-events/conferences/tgcc-2017-conference
- **16 – 18 May, INCOSE Healthcare Working Group Conference: “Agile Methods for the Development of Healthcare Systems 2017”**, Chicago, IL. Visit the Conference Website for more details: incose.org/ChaptersGroups/WorkingGroups/Application/healthcare/agile-healthcare-conference-2017
- **17 May, Monthly Dinner Meeting, TBD**
- **19 May, INCOSE Chesapeake Chapter Women in Systems Engineering (WISE), 3rd Annual WISE and Wine Networking Event, Free,** JHU/APL Kossiakoff Center, 6-8pm. More details and registration: incose-cc.org/registration.
- **20 May, INCOSE Systems Engineering Professional (SEP) Certification Exam:** Hosted by Chesapeake and Washington Metropolitan Area (WMA) Chapters at the Kossiakoff Center, JHU/APL, Kossiakoff Center, Laurel, MD, Saturday, 9:30am -11:30am. Please arrive by 9:00am. Volunteers are needed. More details and instructions on how to register for this exam are available at: incose-cc.org/registration
- **17 – 20 July, INCOSE International Symposium (IS 2017):** Each year, INCOSE hosts the International Symposium as its flagship event for Systems Engineers world-wide. Keynote Speakers on topics reflecting not just Systems Engineering relevancy, but also issues with global currency are presented during this annual gathering. Panels, papers and presentations fill four days of opportunities. INCOSE’s most prestigious awards are bestowed during IS. Industry, government, and academic exhibitors fill the Exhibit Hall to share information about new developments. Students display award-winning engineering projects. Mentors and mentees are introduced to each other. Social activities – formal and informal – bring people together in a highly energized and productive atmosphere. Visit the IS 2017 Website for more details: incose.org/symp2017/home/when-where
- **19 July, Monthly Dinner Meeting, TBD**
- **18 August, INCOSE Chesapeake Chapter 8th Annual SEP Gala**
- **20 September, Monthly Dinner Meeting, TBD**
- **18 October, Maryland Traffic Engineering, use of Agile by the Maryland State Highway Administration (SHA)**
- **6 December, INCOSE Chesapeake Chapter Holiday Party and Awards Ceremony**

What people are saying about Chesapeake Chapter:

“... What a wonderful, innovative, and impactful year for the Chesapeake Chapter. I hope you, your board, and the entire chapter is proud of what you have accomplished...”

Past President,
INCOSE



Systems Engineering Professional (SEP) Certification Exam

The Chesapeake and WMA Chapters are pleased to offer the Systems Engineering Professional Certification Exam at the Johns Hopkins University Applied Physics Laboratory in Laurel Maryland. INCOSE Certification Program Manager, Ms. Courtney Wright, will be present to administer this exam. This Exam is offered at no cost to registrants and will be held on Saturday, May 20th from 9:30am -11:30am Please arrive by 9:00am. The test is open to INCOSE members and non-members. Visit incose-cc.org

for more information and to pre-register for the exam. NOTE: After passing the exam, you must submit your complete CSEP application package along with the required fees, references and join INCOSE to complete your application for Certification. ESEP volunteers are needed to proctor this exam and chapter volunteers are needed to support set-up and sign-in. Please contact programs@incose-cc.org to volunteer today!

Science Fairs and Volunteer Opportunities

Baltimore Science Fair, Towson University, Union Building - Chesapeake Room

25-26 March 2017

9-4 pm 25 March 2017

1-3 pm 26 March 2017

The fair is broken into two Divisions: Division I is students in grades 9 - 12 and Division II is grades 6 - 8.

INCOSE Chesapeake Chapter POC – Charlie Welch, beekeeper@comcast.net.

Chesapeake Science Point (CSP) Public Charter School Career Day

Are you interested in joining CSP for Career Day? They are looking for professionals in a variety of fields to promote college readiness. If so, members of the community are invited to share information about careers and higher education on Friday, May 12th starting at 8:30 am at 7321 Parkway Drive South, Hanover, MD 21076. To register or for more information contact abrown@mycsp.org.

Communications Corner



**Myra Parsons Gross, ESEP
Communications Director**

pages; highlights include the Platinum Award earned in 2015, multiple years in which we earned the Gold Circle Award, as well as earning the 2010 Most Improved Chapter Award and 2 years in which we earned the Presidents Awards. As President-elect, Dr. Crowder will prepare and submit quantifiable materials and data for evaluation by the INCOSE Awards Committee for consideration of the 2017 INCOSE Circle Awards.

IN THE SPOTLIGHT GRACE CROWDER, PHD PRESIDENT-ELECT

Dr. Grace Crowder is the 2017 INCOSE Chesapeake Chapter President-elect. In this role, she is responsible for learning the role of President, in preparation for assuming the office in 2018. The Chesapeake Chapter has a distinguished history of continuously earning top tier INCOSE Circle Awards. The awards are listed on our web



*Grace Crowder,
President-Elect*



Chapter Business Cards

Please contact

Mark Kaczmarek at
membership@incose-cc.org
to obtain your own
Chesapeake Chapter
business cards.

Free to Chesapeake
Chapter members.



Dr. Crowder joined the National Security Agency (NSA) as a civilian in January 1998. She joined the Research Directorate and has collaborated with others across the Intelligence Community, industry, and academe on projects that include: text document genre identification, flexible database representations, distributed knowledgebase systems, and an analytics worksheet framework for streaming data analytics. In addition, she has launched several initiatives, partnering with the Computer Science Teacher's Association, the DOE National Labs, and U.S. Colleges and Universities to further develop and diversify the computer science community at NSA and nationwide.

Dr. Crowder holds a Bachelor's Degree in Mathematics from Goucher College, a Master's degree in Computer Science from the Johns Hopkins University and a Ph.D. in Computer Science from the University of Maryland Baltimore County. She is a life-long learner pursuing on-the-job training opportunities, community learning, as well as formal and informal courses on both technical and non-technical topics. Prior to joining NSA, Dr. Crowder spent 10 years in private industry and 6 years on the computer science faculty of Towson State University.

Special Interests

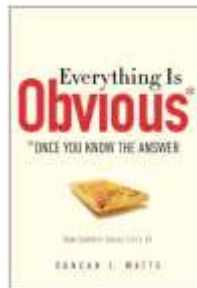
Book Report

Mark Kaczmarek

Everything is Obvious: Once you Know the Answer

By Duncan J. Watts, 1st Ed., 2011, 335 pages

Psst. This book seemed interesting after reading the author's previous book about networks, *Six Degrees: The Science of a Connected Age*. Now, I was expecting a mathematical laden book with explanations about a crafty algorithm on decision making. Not in this book. This does dovetail with the entire author's research behind networks that was developed during his studies at Cornell that produced the *Six Degrees* book. Watts starts off the book with the notion that our "common sense" isn't so special after all, and can often lead us down wrong paths.



He provides this premise:

"The first of these features is that unlike formal systems of knowledge, which are fundamentally theoretical, common sense is overwhelmingly practical, meaning that it is more concerned with providing answers to questions than in worrying about how it came by the answers." p. 9.

"Commonsense explanations therefore seem to tell us why something happened, when in fact all they're doing is describing what happened." p. 122.

Now in the first of 2 sections the author explains how common sense usually fails us in the first six chapters.

How common sense fails us.



Interested in Jobs & Networking

Contact Mark
Kaczmarek

membership@incose-cc.org



NORTHROP GRUMMAN

THE ENGINEERS CLUB
BALTIMORE'S CLUB FOR PROFESSIONALS



The author lists three types of errors:

“The first type of error is that when we think about why people do what they do, we invariably focus on factors like incentives, motivations, and beliefs, of which we are consciously aware.” p. 25.

He covers why this happens:

“The result is that no matter how carefully we try to put ourselves in someone else’s shoes, we are likely to make serious mistakes when predicting how they’ll behave anywhere outside of the immediate here and now.” p. 26.

And it goes downhill from there:

“If the first type of commonsense error is that our mental model of individual behavior is systematically flawed, the second type is that our mental model of collective behavior is even worse.” p. 26.

“The third and final type of problem with commonsense reasoning is that we learn less from history than we think we do, and that this misinterpretation in turn skews our perception of the future.” p. 27.

Are we doomed? No. Read on.

What is relevant?

“When trying to understand – or better yet predict – individual decisions, how are we to know which one of the many factors are the ones to pay attention to, and which can be safely ignored?” p. 43.

Good question.

“The only way to identify attributes that differentiate successful from unsuccessful entities is to consider both kinds, and to look for systematic differences. Yet because what we care about is success, it seems pointless – or simply uninteresting – to worry about the absence of success. Thus we infer that certain attributes are related to success when in fact they may be equally related to failure.” p. 114.

Sometimes my error as well, since I want to focus on what worked, ignoring the failures of the past ... possible to repeat the downfall.

Now, in section 2, Uncommon Sense:

Hidden advice?

Trust No One, Especially Yourself. p. 171.

This is a sobering part of the book, and an example of what to expect.

Finally, here is the author’s perspective on what to do with all the information provided in the book:



“By improving the way we make plans and implement them, all these methods are designed to increase the likelihood of success.” p. 222.

This is the “golden nugget” summarizing the lessons of the book and why I wrote this review.

Now, this is where the systems engineer comes in with our methods and standards. We are certainly champions of success, and following the above conclusion about the formula for having plans that have covered the book’s pitfalls; we have a higher probability of success.

This is not a systems engineering book by any means. However, I feel that some of the examples and the progression through the book will be of assistance in our everyday (engineering) lives.

By the way, there’s even a section about Twitter – though the book was written several years before the current events in politics that have recently come about.

Scholarships

Annual Chesapeake Chapter Science, Technology, Engineering and Math (STEM) Scholarship Applications.

Please visit incose-cc.org for details and application.

Applications will be due on April 30, 2017.



Mark Kaczmarek
Membership
Director

Membership Arena

INCOSE membership is well over 12,000 world-wide. The Chesapeake Chapter of INCOSE serves the systems engineering community in Baltimore and its surrounding areas. Our Chapter is very active and prides itself in the many endeavors it has undertaken. An organization such as ours relies on the willingness of its membership to put as much effort into it as they receive in return.

Chesapeake Chapter’s membership Includes:

- Current membership = 320
- Certification = 140
 - ASEPs = 22
 - CSEPs = 88
 - ESEPs = 29

Learn more about the [benefits of joining INCOSE](#) and consider being part of this thriving organization and fill out an [INCOSE Membership Application](#) today!



The Chesapeake Chapter proudly welcomes our new members:

February 2017

- *Bjorkgren, William*, Sotera Defense Solutions, Inc.
- *Knizhnik, Jessica* - Student
- *Thomas, Kyle* - MetaTech Consulting, Inc.
- *Walsh, Alexander* - Student, Penn State University

January 2017

- *Azan B*, CSEP (Associate Director)
- *Morgenstern Robert*, National Aeronautics and Space Administration (NASA)
- *Topping Gary*, Smiths Detection

December 2016

- *Bjorling Terra*, ASRC Federal
- *Cates, Noble*, CSEP – Vencore (Associate Director)
- *Raub Francesca*, Capella University

November 2016

- *Lancaster, Jay*
- *Michealson, Kirk*, Tackle Solutions, LLC
- *Baker, Robert*, Colorado State University Systems Engineering Programs

Congratulations to Newly Certified SEPs since August 2016:

- *Butziger, Peter*, ESEP - Vencore
- *Dougherty, Joseph*, ASEP
- *Flanigan, David*, CSEP - JHU/APL
- *Gianni, Benjamin*, ASEP - Loyola University Maryland
- *Gigioli, Tony*, CSEP - Booz Allen Hamilton (Chesapeake Chapter Treasurer)
- *Harvey, Lance*, ESEP - Jacobs
- *Hershey, Robin*, ESEP - BCT, LLC
- *Jackson, Dustin*, CSEP - Leidos
- *Lantz, Gary*, CSEP - The Boeing Company
- *Morgan, Asia*, CSEP
- *Polacek, George*, ESEP
- *Sathi, Ram*, CSEP - Northrop Grumman Corporation
- *Starkey, James*, CSEP
- *Wright, Linnea*, CSEP – Booz Allen Hamilton, Inc.



Keep up with the latest news and events. Find out about our new Board of Directors. Explore our extensive library of previous lectures from our Monthly Dinner Meetings. Learn of the Benefits of Joining INCOSE. Check out Systems Engineering education in the local area. All this and more awaits you at our Chapter Website

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

For any comments or suggestions about this newsletter please e-mail our communications team communications@incose-cc.org. We value your feedback.

Board of Director Officers, 2017

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| - President: Michael Pafford | - Secretary: Craig Tyler, ESEP |
| - Past President: EleanoraAnn "Ellie" Gianni, ESEP | - Programs: Gundars Osvalds, ESEP |
| - President-Elect: Dr. Grace Crowder | - Communications: Myra Parsons Gross, ESEP |
| - Treasurer: Tony Gigioli | - Membership Committee: Mark Kaczmarek |

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