

INTERNATIONAL COUNCIL ON SYSTEMS ENGINEERING

CENTRAL VIRGINIA CHAPTER

www.incose.org/central-virginia

Aug 2021

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Cordially invites you to attend a dinner and presentation by:

Anthony Sirico, LT
Enterprise System Engineer
National Reconnaissance Office

Topic:

Machine Learning Techniques for Systems Engineering

At:

Park Lane Tavern

Spotsylvania Towne Centre, 1 Towne Centre Boulevard, Fredericksburg, VA
(see map)

Wednesday, 18 August 2021

Times: Social (Cash Bar)	1800	(Everyone Welcome)	
Dinner	1830	Charge: INCOSE Members:	\$15.00
		Non-Members:	\$20.00
Presentation	1930	Students:	\$12.00

Menu: A variety of dinner choices are available for the given price and one coffee, tea or soft beverage.

Price: The cost for members is \$15 including 9% tax and 18% tip. The cost for a nonmember or guest is \$20. Full time students will be charged the reduced rate of \$12.

Contact: Email: Rod Cutright, (540) 653-6580, Roderick.cutright@gmail.com or Anthony Sirico (904) 307 7512, Anthony.Sirico@colostate.edu to make your reservation.

We ask you to help us out by reserving early. You can always cancel later if things change so you cannot make it. Please come out and support this event so that the Chapter can continue to hold meetings in Fredericksburg on occasion. Thank you.

Topic: I propose a novel way of classifying graph-based architectures using two machine learning techniques: Deep Graph Convolutional Neural Networks (DGCNN) and Graph Convolutional Networks (GCN) with EigenPooling. These unique algorithms can help improve the system engineering process by streamlining the computational processes required for architecture selection. Graph classification using graph neural networks has attracted increasing attention, and this study shows how it can be used within systems engineering and design. Neural networks typically deal with input and output data in tensor form, but recently, there have been significant breakthroughs using graphs, and since graph theory is being seen more and more not only in systems engineering but engineering as a whole, these techniques show a promising breakthrough. Some applications this can be applied to include, but are not limited to, electrical circuits to aircraft thermal management systems, aircraft bleed air systems, cyber networks, and any system that can be represented by a graph.

The Speaker: Enlisted in the navy in 2004 as an air traffic controller. Was accepted into the naval academy graduating in 2011 with a B.S in astrophysics. Flew EP-3s out of whidbey Island Washington supporting operations all over the globe. Stood up the navy's first MQ-4 squadron in (continued)

Business Meeting: A short INCOSE business meeting will be held after the presentation to discuss and update on Chapter initiatives and business.

The Speaker (continued): Jacksonville, FL. VUP-19. While there I earned my masters in SE from the naval post graduate school. Went on to the Defense Threat Reduction Agency as an international CBRNE project officer working with Moldova and Albania. Now I am an Enterprise Systems engineer at the national reconnaissance office. I am married with a 6 year old son and 4 dogs in Culpeper.



President’s Corner: A dinner meeting has been scheduled at Park Lane Tavern, Aug 18, 2021. Anthony Sirico will be our presenter. Our INCOSE meeting in July, the first since COVID restrictions were lifted, was well attended with over twenty people showing up. Thanks to Dr. McConkie we had an excellent technical presentation.

Our presenter in August is Anthony Sirico. Anthony’s presentation will be “Machine Learning Techniques for Systems Engineering”. We look forward to Anthony’s technical presentation this month. His Bio is featured in this News Letter that you have insight to our speaker and his professional career.

Two members of the Southern Maryland Chapter of INCOSE visited our Chapter in July. On behalf of our Chapter I want to thank Cheryl Kinchen and Marcie M. Roam for their visit and support. I, in turn, visited the Southern Maryland Chapter on 30 June 2021 for their dinner meeting. Mr. Greg Olson, the UAS Manager with KBR Hosted the meeting. An Excellent meal was served and Cheryl gave a presentation on INCOSE certifications available to our members.

We, as a Profession and Society, through our own resolve, have continued to contribute to the Nation’s defense and further the integration of science, technology, engineering and mathematics (STEM) in problem solving.

Hope to see you on August 18, 6:00 PM at Park Lane Tavern March 2020,

Want to get more involved? The Chapter is looking for people who want to do more for the Chapter. There are Chapter committee positions that need people to fill them. There are Chapter positions suited for those who can make small or large commitments. Contact the Chapter President for information or attend one of the regularly scheduled Dinner or Executive Committee meetings.

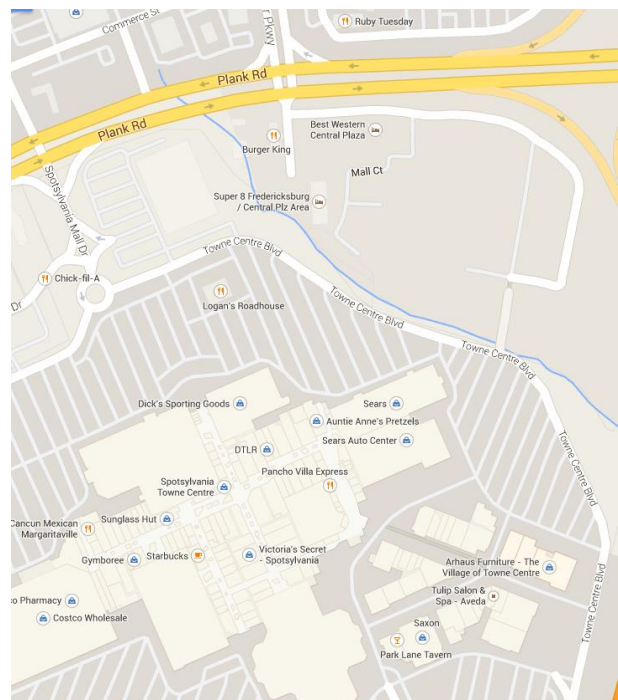
To get information on leadership responsibilities go to the Central Virginia Chapter website to view the Bylaws and Constitution, <http://www.incose.org/central-virginia/>.

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded in 1990. Our mission is

to advance the state of the art and practice of systems engineering in industry, academia, and government by promoting interdisciplinary, scalable approaches to produce technologically appropriate solutions that meet societal needs.

Order Coffee Cups with Chapter Logo: The Chapter will have some coffee cups with the new Chapter logo imprinted on them for mementos for our meeting speakers and for responding members, in the near future. If you would like us to include you on this order, contact Ajoy Muralidhar (see front page). The approximate (at cost) price will be \$11 if you pick the cup at a meeting.

Map to Park Lane Tavern: Get off Interstate 95 at Exit 130 and go west on Route 3 (Plank Road) and turn left into Spotsylvania Towne Centre Mall. At roundabout go left on Towne Centre Blvd and follow it around to the back of the Mall where one turns right to get to the restaurant as shown on map.



9th Annual Stem Summit: The 9th annual STEM Summit was held on Feb 29, 2020, and was a huge success. I would like to thank David and Rebecca Kreider, Ajoy Muralidhar, John Maresco, Matt Iglesias, and Greg Buchanan for their assistance in manning the INCOSE booth and discussing career choices with the students. The next Summit may be held virtually.

POC: Dr. Gregory Chambers, gchambers426@msn.com.

Interested In Becoming an INCOSE Member?

If you would like more information about the international Council on Systems Engineering (INCOSE) or you are

interested in obtaining information about becoming a member, please contact any of the members of the Executive Committee of the Central Virginia Chapter. Their names and contact information are listed in the "letterhead" located on the first page.

Science Fair Judges and Supporters: On March 4, 2020, the Chapter presented awards at the Virginia Piedmont Regional Science Fair (VPRSF).

The awards consisted of a certificate and check. The first place award was \$100, the second place was \$75 and third place award was \$50, along with Certificates. Dan Vavrick, Director and Science Fair Committee Chairman attended the Regional Fair as judge.

The Section plans on giving awards again to the Regional and State Science Fairs as fairs come back to normal operation.

If interested in volunteering or wish for more information on opportunities to participate in Science events, please contact Dan Vavrick or any INCOSE Officer.

The Piedmont Regional Science Fair Web site address is <http://www.vprsf.org/register.htm> to sign up to be a judge, The 2020 Virginia State web site is <http://www.vssef.org>.

From the Desk of the Editor: If you are not on our Chapter's newsletter emailing list, please send me an email and I will make sure to get your name on the list. You will then get all future newsletter and meeting announcements. My contact info is on front page.

Again, I want to remind the membership of the efforts that go into organizing a meeting and the efforts of the speaker to prepare his/her presentation. These dinner meetings can only continue with your support. The Officers of the Chapter will continue to arrange excellent programs and the Chapter will continue to greatly subsidize the cost of the meal for all attendees.

I hope that you decide to support this engineering event, of which there are only a few per year. Also, I hope to meet you and get to know you.

Meeting and Events Schedule:

Future Meetings and Events:

Aug 18, 2021, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr.; Anthony Sirico; Topic: Machine Learning Techniques for Systems Engineering; Coord: Rod Cutright

TBD, 2021, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr.; TBD; Coord: Rod Cutright

Past Meetings and Events:

Jun 23, 2021, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr.; Eileen B. McConkie; Topic: Mathematical Properties of System Readiness Levels; Coord: Rod Cutright

Jan 15, 2020, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr.; Gordon J. Gattie; Topic: What Were You Thinking? Investigating Human Judgement Through Probabilistic Functionalism; Coord: Eileen B. McConkie

May, 21 2019, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr.; TBD; Topic: A General Theory of System Safety; Coord: Alan Brown

Mar 26, 2019, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr.; George Meadows; Topic: From Virtual to Physical and Back Again: 3D printing and Augmented Reality; Coord: G Chambers

Feb 19, 2019, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr: Gil Goddin.; Topic: Complex System of Systems Control Hierarchy; Coord: Ajoy Muralidhar

May 29, 2018, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr: Gil Goddin.; Topic: Systemic Risk Analysis for Complex Systems; Coord: Ajoy Muralidhar

Apr 25, 2018, 1800; Cancelled; Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr: John Seel.; TBD;; Coord: Ajoy Muralidhar and Dr. Eileen McConkie

Mar 27, 2018, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr: Mr. John Fiore, SES.; Topic: Technical Rigor in a Multi-Sponsor Organization; Coord: Ajoy Muralidhar

Feb 27, 2018, 1800: Chapter Dinner Mtg; Loc: Park Lane Tavern, Fredericksburg; Spkr: Don S. Gelosh, Ph.D., CSEP-Acq.; Topic: Introduction to INCOSE Institute for Technical Leadership; Coord: Ajoy Muralidhar and Dr. Eileen McConkie