

# IEEE Systems Council Technical Operations

Walt Downing

AdCom Meeting, September 21, 2018

Gaylord National Resort & Convention Center

National Harbor, MD



# Existing Technical Committees

## *10 Technical Committees*

- ✓ Analytics and Risk
- ✓ CubeSat Miniaturized Satellite (Startup attempt in 2018)
- ✓ Cyber-Physical Systems
- ✓ Human Systems Integration (Added in 2017)
- ✓ Intelligent Transportation Design (Needs refresh or termination)
- ✓ Networked Systems
- ✓ Security and Privacy in Complex Information Systems
- ✓ Systems Biology and Biomedical Systems (Refreshed in 2018)
- ✓ Standards (Unsuccessful attempt to start in 2017)
- ✓ Systems Education (Unsuccessful attempt to start in 2017)

# Analytics and Risk Technical Committee

*Deshing “Dash” Wu, Chair*

- ✓ Leadership in place
- ✓ Web presence established
- ✓ Holding meetings, most recent in August 2018 at conference in Toronto, Canada
- ✓ Topical track at the 16<sup>th</sup> Annual Conference on Systems Engineering Research, Charlottesville, VA, May 8-9, 2018
- ✓ Discussing collaboration with INCOSE Risk Management Working Group (Bob Parro)
- ✓ Meeting at SYSCON

*Summary – Well established technical committee with good activities.*

# CubeSat/Miniaturized Satellite Technical Committee

## *Need Chair*

- ✓ John Schmalzel willing to help out
- ✓ New IEEE Journal on Miniaturized Air and Space Systems (J-MASS)
  - ✓ Flyer published
  - ✓ Call for Papers
  - ✓ Informational website opens September 1, 2018: <https://ieee-jmass.org>
- ✓ Interest in organizing an “IEEE International Conference on Miniaturization for Air & Space Systems”
- ✓ Need to establish web presence

***Summary – New technical committee for 2018.***

# Cyber-Physical Systems Technical Committee

*Shiyan Hu and Albert Y. Zomaya, Co-Chairs*

- ✓ Leadership in place (5-person executive committee)
- ✓ Relatively large membership
- ✓ Extensive web presence on IEEE website – linked from Systems Council website
- ✓ Publications
  - ✓ Semiannual newsletter (Last issue August 2018) – listed on SYSCON website
  - ✓ Special issues, e.g. Design Automation for Cyber-Physical Systems and Human-Interaction-Aware Data Analytics for Cyber-Physical Systems
- ✓ Active participation in conferences
  - ✓ IEEE International Workshop on Smart Energy Cyber-Physical Systems, August 1-3, 2018
  - ✓ IEEE International Conference on Embedded Systems and Real-Time Computing Systems and Applications, August 29-31, 2018
- ✓ Awards program
  - ✓ Technical Achievement Award
  - ✓ Distinguished Leadership Award
  - ✓ Mid-Career & Early-Career Awards
  - ✓ Ten-Year Retrospective Most Influential Paper Award
  - ✓ Industrial Technical Excellence Award
- ✓ Established contacts and collaboration with INCOSE Complex Systems Working Group (Jimmie McEver) and Software-Systems Interface Working Group (Dick Fairley)

***Summary – Well established and active technical committee following many best practices.***



# Human Systems Integration Technical Committee

*Holly Handley, Chair*

- ✓ Leadership in place
- ✓ Web presence established
- ✓ Current Member Count - 33
- ✓ Collaboration with INCOSE
  - ✓ Interaction with INCOSE Working Group (Guy Boy)
  - ✓ Planning HSI conference in Biarritz, France on September 11-13, 2019
- ✓ Collaboration with Human Factors and Ergonomics Society (HFES)
  - ✓ HSI TC meeting on October 2, 2018 at HFES Annual Meeting in Philadelphia, PA
- ✓ Human Systems Integration Special Session at SYSCON 2018 – Successful
  - ✓ Three papers presented
  - ✓ Large turn-out
- ✓ Meeting at SYSCON 2018
  - ✓ Five attendees at HSI TC meeting
  - ✓ Reviewed goals for next year
- ✓ Meeting at ISSE 2018 if members attend
- ✓ Plans for meeting at SYSCON 2019 – Special Session on “Socio-technical Systems”

***Summary – Good start and growing.***

# Intelligent Transportation Design Technical Committee

## *Chair?*

- ✓ No response from chair (formerly LaMont McAliley)
- ✓ Web presence established, but information is very dated
- ✓ Held meetings early on, but none reported since late 2016
- ✓ Chamara Johnson expressed interest in participating, but too busy to chair
  - ✓ Heavily involved in IEEE VTS and INCOSE Transportation Working Group
  - ✓ Suggested collaboration with INCOSE

*Summary – Activity and membership seem to have fallen off. Reaching out to chair, but no response. Committee appears to be inactive and recommend disbanding or collaborating with INCOSE.*

# Networked Systems Technical Committee

*Rob Riley, Chair*

- ✓ Leadership in place
- ✓ Web presence established and updated earlier this year
- ✓ Last meeting held on 3 May 2018 in Rome, NY (Mohawk Valley Chapter)
- ✓ Seminar on “Network Science-based Metrics for Quantification of Link Stability for Mobile Sensor Networks” by Professor Natarajan Meghanathan
- ✓ Presentation available, but with poor audio quality

*Summary - Relatively well-established technical committee with limited activities and membership. Chair seeking suggestions for additional topics.*



# Security and Privacy in Complex Information Systems TC

*Pierangela Samarati, Chair*

- ✓ Leadership in place
- ✓ Web presence on IEEE website - Linked from Systems Council website
- ✓ Collaborated in 15<sup>th</sup> International Joint Conference on e-Business and Telecommunications, July 26-28, 2018, Porto, Portugal
- ✓ Delivered multiple keynote addresses, invited talks, and lectures during 2018

*Summary – Satisfactory progress.*

# Systems Biology and Biomedical Systems TC

*Bernard Fong, Acting Chair*

- ✓ Chair mostly interested in Region 10 activities, such as workshops
- ✓ Web presence established and information updated
- ✓ Small membership
- ✓ Conducted workshop in Hong Kong on March 5-6, 2018
  - ✓ Financially sponsored by IEEE Consumer Electronics Society Hong Kong Chapter
  - ✓ Technical focus on consumer healthcare devices, reliability, and optimization of preventive care solutions
  - ✓ 29 attendees
  - ✓ 4 tutorials, 7 technical papers, industrial demonstrations, and panel discussion
  - ✓ Selected papers to be published in IEEE Consumer Electronics Magazine sometime in 2019
- ✓ Planning similar workshop in Hong Kong on June 7-8, 2019
  - ✓ Technical focus on designs, circuits, and systems for assistive and preventive care
  - ✓ Publicized on SYSCON website and social media

***Summary – Workshop may have had the intended purpose of stimulating some activity.***



# Standards Technical Committee

*Annette Reilly, Chair*

- ✓ I think that over the years the utility of a standards sponsor/standards committee at the IEEE Systems Council level has become less evident. Growth in the number of IEEE Sponsors and specialized standards in various technical societies that are members of the Systems Council, as well as new projects for S2ESC, and the complexities of joint sponsorship, has made it preferable for the IEEE Systems Council to take more of an informational role.
- ✓ There are a few high-level, wide-scope projects that could conceivably be sponsored by a standards committee of the IEEE Systems Council, such as
  - ✓ P2413 – Architectural Framework for the Internet of Things (IoT)
  - ✓ P2413.1 – Reference Architecture for Smart City (RASC)
  - ✓ P2418.1 – Standard for the Framework of Blockchain Use in Internet of Things (IoT)
- ✓ But it is probably for the best that these projects are hosted by the IEEE Standards Association Board of Governors, which has better access to resources to support standards development than the Systems Council.

***Summary – Created a Call for Participation to Council Societies. Does not appear to have made any progress.***

# Systems Education Technical Committee

*Charles K. Pickar, Chair*

- ✓ Leadership in place
- ✓ Initial web presence established
- ✓ *The IEEE Systems Council Systems Education Technical Committee provides both a resource and forum for members to discuss and exchange ideas on systems related activities including systems thinking, systems engineering and system dynamics and how to promote and sustain these skills for both members and the larger engineering community. It is meant to be a location for members to discuss and share systems focused educational information, practice and new thinking. Ideally, we will be able to collect, refine and warehouse ideas and materials for members to share and use in any aspect of informing on systems thinking, education and engineering. While meant for all interested members, it will also serve as a repository for systems focused educational techniques, including systems engineering and system dynamics.*
- ✓ *Discussing collaboration with INCOSE Academic Council (Ariela Sofer)*
- ✓ *Published call for participation in 4<sup>th</sup> quarter newsletter – no response*

***Summary – New technical committee in 2017. Need to stimulate membership. Perhaps more close collaboration with INCOSE.***

# Possible Areas of Collaboration with INCOSE

## *Interaction with Dick Fairley*

- ✓ Share newsletters and email announcements
- ✓ Invite opposite members to meetings and presentations
- ✓ Invite opposite members to make presentations at chapter meetings
- ✓ Offer member rates in events
- ✓ Explore collaboration on projects of common interest to some members of each group
- ✓ Create special interest groups for topics of common interest
- ✓ Co-sponsor local and regional events
- ✓ Encourage “branding” of both organizations at co-sponsored events
- ✓ Provide samples of back editions of various publications at these events
- ✓ Propose and co-edit special issues of transactions for topics of interest to both groups
- ✓ Encourage groups to join together to write papers for newsletters for topics of shared interest
- ✓ Encourage groups to work together on development of relevant standards and guidelines