2018
Annual INCOSE
international workshop
Jacksonville, FL, USA
January 20 - 23, 2018

Introducing the Systems and Software Interface Working Group

Dr. Paul Nielsen
Director and CEO
Carnegie Mellon University Software Engineering Institute

www.incose.org/IW2018

Agenda

- About the systems and software working group
- The systems-software challenge today
- Now what?

“More and more major businesses and industries are being run on software

and delivered as online services—from movies to agriculture to national defense.”

Marc Andreessen,
“Software is Eating the World,”
The Wall Street Journal, August 2011

“If we don’t get into software-systems very soon,

we will quickly become irrelevant.”

Heinz Stoewer,
INCOSE past president

The Systems and Software Interface Working Group (SaSIWG)

- Organized 2017 in response to Corporate Advisory Board “important issue”
- No one’s “most important” issue but 8 companies’ “also important” issue
- Number of Members: 16+
- Number of Members Participating at IW: 3+
- Co-chairs: Sarah Sheard and Mike Pafford (Joe Marvin, Edmund Kienast)

INCOSE Connect address:
https://connect.incose.org/WorkingGroups/systems%20and%20software/SitePages/Home.aspx

INCOSE SaSIWG Charter

Purpose

- To understand, clarify, and work to resolve issues with systems-software interfaces that challenge our ability to engineer today's and tomorrow's systems. These interfaces include physical, logical, data, and human aspects.
- This working group will help to close the gap between systems and software bodies of knowledge as systems evolve into using more software and software evolves into needing and using systems engineering.

Near-Term Goals

- Develop a set of principles and/or guidance for identifying and reducing system-software interface risk. Disseminate this guidance to the CAB as it is developed, for comment and use.
- Become officially chartered by end of IW2018 : Already completed!
- Get INCOSE WG website up and running, by 1 December 2017
- Hold working group meetings in IW 2018 and IS 2018
- Longer term: May map SWEBOK to SEBOK, or develop guidance to SysEs & SWEs

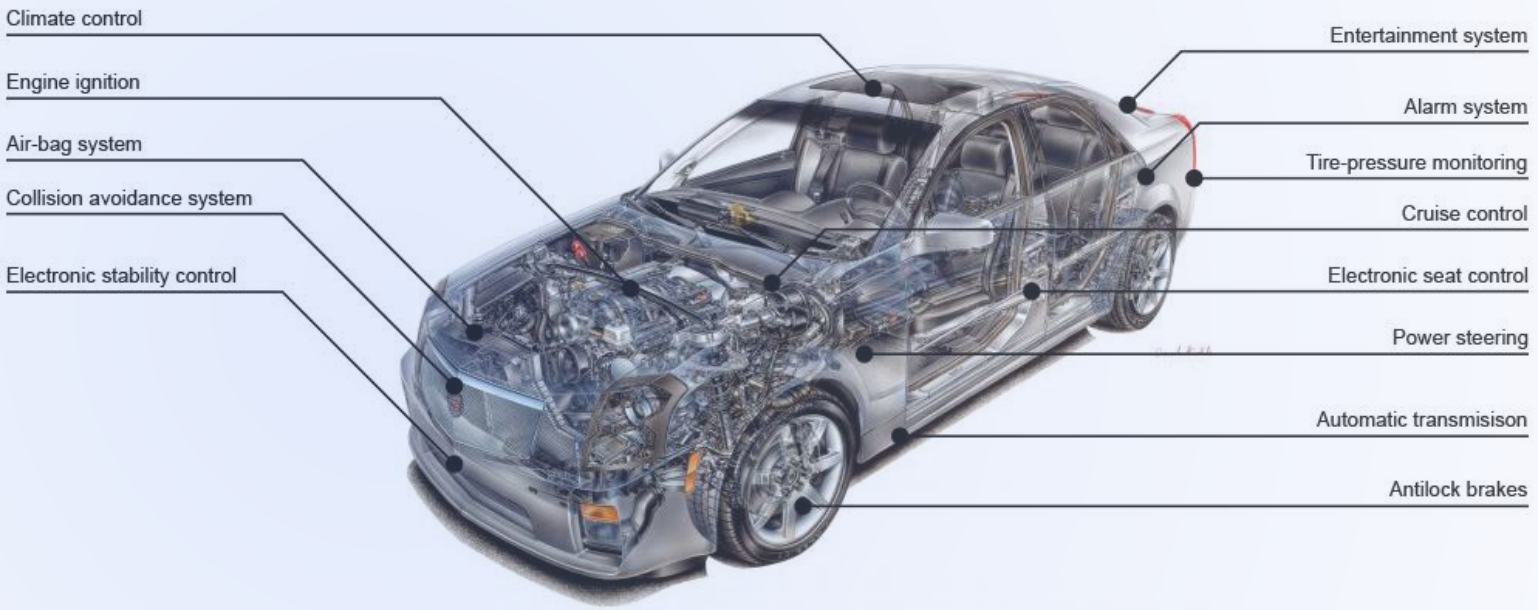
Scope

- Address, at a high level, the process-related interfaces and technical interfaces between systems and software. This WG will not initially include interfaces among communities (e.g. IEEE-INCOSE, standards bodies, etc.)

The systems-software challenge today

- Cost, speed, weight, and features of COTS units today exceed “bespoke” systems
- Software cost overruns are overwhelming system delivery and sustainment
- Latent cyber vulnerabilities and those exposed during operations or due to underlying dependencies are putting system security at risk
- Software engineering as we know it is also at risk … Apps, coders, fast and flashy

- 100M lines of code
- Up to 100 computers
- Greater connectivity
- Over-the-air software updates



Now what?

- Topic will be addressed within INCOSE by the SaSIWG
- Other WGs addressing in some ways
- Would like to hear about other areas
- Send info, questions, and requests to Sarah Sheard: sarah.sheard@gmail.com

SaSIWG Progress

WG charter approved Dec. 2017

2018 desired outcomes

- Points of contact with at least two other INCOSE organizations (e.g., WGs including 1 from MBSE area)
- WG list with 5+ new members from U.S. and 3+ from countries other than U.S. and Australia
- Plan for moving ahead with 2 products next 6 months:
  - IS2018 paper on the variety of system-software interfaces
  - Another paper TBD

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