From the Editor's Desk...

JSS Technical Editor
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Social Change

Is social media changing the way we interact and learn in our profession? Back in the day, when I was a new engineer in the system safety profession, it was difficult to find experts in the field to help explain basic concepts and processes. Typically, we had to join an engineering society, such as the International System Safety Society, and attend a technical conference to interact with knowledgeable and experienced individuals in the system safety discipline. Today, it seems we are trending toward obtaining information from social media groups, such as LinkedIn. It's obviously cheaper than joining a professional society or going to a conference. But there are also some downsides. For example, many times I have witnessed answers given to questions, and the answers were misleading and/or totally wrong. The old adage that "you get what you pay for" really is applicable to the Internet.

So, what are we missing? Perhaps you readers can give me some valuable feedback (please send it to the email below). I would appreciate hearing your response to the following question: Do you think individuals are losing interest in the International System Safety Society? If so, is it because:

a) It's too expensive to join
b) It provides no tangible benefits
c) Social media is faster/cheaper/better
d) It's military-oriented, and not large enough in scope
e) It's not relevant to the safety industry
f) They don't know anything about the International System Safety Society
g) They already know what's necessary
h) Other

The first technical paper in this issue, "An Improved Estimation of Multiple-Point Fault Probabilities if the Faults Have Different Periodic Latencies" was written by Frank Edler, Michael Soden and René Hankammer. Fault tree analysis (FTA) and event tree analysis (ETA) are established methods for assessing potential risks of hazardous events, particularly those resulting from coincidental events. Combining the Boolean algebra, probability theory and reliability data allows for quantitative estimation of intrinsic risks. The quantitative theory for FTA was developed mainly between the 1960s and 1980s and, at that time — given restricted computer resources — simplifications and approximations for the mathematical formulae were needed to achieve calculation results within an acceptable time. This paper presents the results of an investigation revealing that some of these simplifications and approximations, often assumed as precise calculations, can lead to wrong results in quantitative risk assessment. When in combination of faults individual latency periods exist, the currently established approximations may lead to results that are too optimistic in comparison with a precise probabilistic approach. This paper proposes a new approximation for the computation of the related probabilities, with an approach that provides an upper-bound estimation. Using the developed formulae, the under-estimation of multiple-event probabilities can be avoided.

The second technical paper in this issue, "Applicability of MIL-HDBK-516B to Certifying Autonomous Decision Making Air Vehicle Systems" by Alan Burkhard and Matthew Clark, looks at airworthiness certification of military aircraft by the developing military service. Air Force programs use the qualitative criteria outlined in MIL-HDBK-516B, "ASC/EN Airworthiness Certification Criteria Expanded Version of MIL-HDBK-516B," dated September 26, 2005, to aid the development of program-specific airworthiness criteria. The generalized criteria in this document are used to construct the specific criterion, associated artifacts and evidence of compliance, as the basis for making an air-worthiness determination. This paper describes the process of transitioning from qualitative to specific criteria, and then examines the applicability of the existing guidance in MIL-HDBK-516B to autonomous decision-making adaptive air vehicle systems. Recommendations are made for future research and criteria expansion. An integrated approach that uses the most promising emerging and existing design, analysis, and validation and verification techniques is proposed as a means to develop the artifacts for certification coverage of autonomous adaptive unmanned air vehicle systems.

In this issue's System Safety in Healthcare column, "Electronic Health Records Dangers for Patient Safety," Dev Raheja discusses the risks presented by hazards in the electronic record database systems of healthcare providers.

In his TBD column, Charles Hoes looks at why system safety appears to be fading away. He provides some insightful thoughts on the various drivers causing the overall lack of interest in system safety.

In his Unintended Consequences column, Terry Hardy discusses an interesting incident in which a bank customer was locked in overnight between two sets of doors at his bank when he was using the ATM machine — definitely an unintended consequence that shows the bank's lack of analysis and forethought.

In the Design-Based Safety column, Dave MacCollum discusses the evolution of safety involving the transition of "behavior-based safety" to "design-based safety." His many years of experience provide some useful thoughts on system safety, especially as he delves into automation and autonomous systems.

Also in this issue, John Livingston discusses how one goes about getting started in system safety. He presents many useful ideas learned in his many years of experience in system safety.

Remember, if you wish to opine send me an email at cliftonericson@verizon.net.

Until next time,
Clif

In Memoriam: Rene Fitzpatrick and Don Ammerman

It's with sadness that we note the passing of two ISSS members, Rene Fitzpatrick and Don Ammerman.

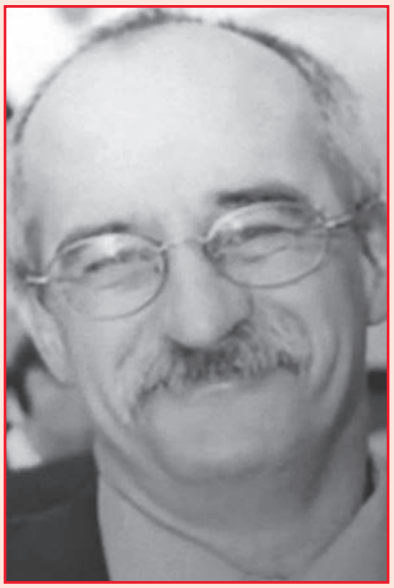
Rene Fitzpatrick, 1955-2015

Rene Fitzpatrick passed away on April 22, 2015 at the age of 59 after a long battle with lung cancer.

Rene was born in the Bronx, New York on December 3, 1955 and raised in Massapequa, New York. He graduated from Arizona State University with a BS in aeronautical engineering in 1979.

Rene retired from Raytheon as a safety program manager in 2011.

Rene was an active member of the International System Safety Society, helping set up the International System Safety Convention in Las Vegas in 2011, and was voted Manager of the Year in 2011.



Rene Fitzpatrick

Don Ammerman

He is survived by his wife, Charlene Fitzpatrick; his sons, Casey and Kyle; and siblings Georgette Torres, Tom Fitzpatrick, Janine Kline and Elise Volpe.

The family asks that gifts in sympathy be given to the USO (www.uso.org/donate) or the Red Cross (www.redcross.org/donate).

Don Ammerman, 1931-2015

Don Ammerman passed away on May 20, 2015 at the age of 84 after a period of declining health.

Don was born in Geneva, New York on March 20, 1931. He graduated from the U.S. Naval Academy in 1953, and served in the U.S. Navy from 1953 to 1958, serving aboard the *USS Picking, USS Goldfinch* and as commanding officer of the *USS Yazoo*. He served an additional 21 years in the Navy Reserve, where he attained the rank of commander.

Don worked for NSWC in Dahlgren, and later for EG&G and URS as an engineer working in the area of missile safety for the U.S. government. He retired in 1994.

He is survived by his wife, Anne Britton Ammerman; a son, Wesley George Ammerman; a sister, Ann Ammerman Wildasin; brother-in-law George Britton (Irene); niece Lynda Wildasin Watkins (Duane); nephew Clay Britton (Stacia); and great-nieces and -nephews.