

From the Editor's Desk...

JSS Technical Editor
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Artificial Intelligence

I read a good number of scientific and technical journals, and almost every issue includes at least one article on some aspect of artificial intelligence (AI). The topics are usually about a new application, such as unmanned fighter jets, but quite often these articles touch upon the potential risks of these systems. One paper I find particularly interesting discusses the “robot disobedience” aspects of AI that are well known in popular culture [Ref. 1]. Famous movie examples of AI behaving badly include Hal in *2001: A Space Odyssey* and Ava in *Ex Machina*. The authors make an assertion that is familiar to many of us working in system safety: “The main problem is the fallibility of the robots’ human creators and masters.”

This issue of *Journal of System Safety* includes technical papers on AI by two of the International System Safety Society’s most well-known authors.

The first, “Artificial Intelligence (AI) — The Need for New Safety Standards and Methodologies,” is by Dr. Malcom Jones. It gives a good overview of the subject.

The second paper, “Is AI in Healthcare Doomed, or Destined for Greatness?” by Bijan Elahi, discusses

the present and possible future state of AI applications in healthcare.

Finally, the third paper, “A Mathematical Method to Optimize Fault Tree Displays” by Thomas C. Bingham II, takes us “under the hood” of the software behind fault tree tools.

Rounding out this issue is the “TBD” column by Charlie Hoes, which discusses some historical aspects of the funding for practitioners to attend the International System Safety Conference, and what this might mean for the Society. The System Safety in Healthcare column by Dev Raheja and Dr. Maria C. Escano discusses unsafe practices in medical practice. And, a letter to the editor by Rick Clarke points out that a *JSS* article by Nancy Leveson in our last issue (Vol. 55, No. 2), “Improving the Standard Risk Matrix using STPA,” may not be fully connected to the background of system safety.

As usual, I welcome your comments, letters to the editor and article submissions.

Regards
Chuck

References

1. Briggs, Gordon and Matthias Scheutz. “The Case for Robot Disobedience,” *Scientific American*, January, 2017.

38th International System Safety Conference

August 24-28, 2020 • Portland, Oregon

The 38th ISSC will convene in the beautiful, vibrant city of Portland, Oregon from August 24 through 28, 2020, and we want to see you there!

In addition to meeting your fellow system safety professionals, there will be multiple opportunities for education, training and interactions.

Interested in presenting at the Conference? You can read about the various presentation types available on page 28, as well as domains of interest and upcoming key submission dates. We look forward to your input!





Letters to the Editor

I just went through Nancy Leveson's article, "Improving the Standard Risk Matrix using STPA," in the Vol. 55, No. 2 issue of *Journal of System Safety*. While Leveson has provided useful insight regarding system safety engineering, there are a few losses of connection to the background of system safety.

My own past experience has been exposing aviation operators, regulators and inspectors to the concepts of hazard, risk and risk assessment. We were teaching system safety management (SSM) as Brian Moriarty taught me years ago. The basic idea was that system safety engineering (SSE) needed to be made comprehensible and useful before managers would understand or apply the theory to practice via SSM. In the text I see two aspects that seemingly overlook the history of our discipline and Society and detract from getting system safety understood or applied:

First, on page 14, column 1, awareness of our discipline's origin and that of the Society is missing. System safety — as I was taught, and as various colleagues of the 1960s and 1970s often said — originated in realizing that reliability of components did not bring

about overall safety and success of the system. In fact, the reliability focus degraded system success. The oft-cited example was the Titan missile program failures versus the success of the Minuteman system once our "founders figured out how to view the 'System.'"

Second, on page 20, column 2, Leveson describes a hazard "evaluated for its impact on three categories: humans, mission and equipment." Has the basic International System Safety Society mantra of "Man, Machine and Environment" been lost? That is the basic message we've used to get the world's attention and it's our basic frame of reference to the world. I don't think we need to rephrase or lose that.

Nancy Leveson has put a lot of thought and work into this article and into her work. I hope that eventually she can take on the problem of transferring her ideas to audiences such as corporate and safety staff or to investigators for organizations such as the U. S. National Transportation Safety Board. It'll be a challenge.

— Rick Clarke
Former Second Vice President