WORLD AUTOMATION CONGRESS

WAC 2018

13th Bi-annual Congress

KEYNOTE No. xx

Delbert Tesar
The University of Texas
Austin, USA

Time: 09:00-10:00
Wednesday June 6, 2018
Chair: Gordon Lee, USA
Venue: Stevenson Ballroom A

Critique of AI in 2030

ABSTRACT: Artificial Intelligence entered the array of technologies in 1956 with flourish and promise primarily because of the predicted computational capability offered by advancing computer technology. Unfortunately, this was overstated and AI became primarily a science-oriented development. Recently, because of social media, huge data generation systems (healthcare, vehicles, air transport, etc.) , it becomes necessary to control complex operations in near real time and to augment human decisions. Nonetheless, the September 2016 assessment report lists ten applications for AI with considerable emphasis on AI's dominance with modest indications of how it should be integrated with other technologies. There is a high emphasis on neural networks, deep learning, web searches, and data handling; all

reminiscent of predictive analytics (statistics, logic, probability, operations research, etc.). The underlying theme appears to displace human judgment in favor of computer decisions. Unfortunately, decisions are becoming ever more geometrically complex (serial, parallel, mixed) with hundreds of criteria, all required in less time (often in msec.). This brief is intended to show that all technologies should be put into balance for application domains such as transport, healthcare, public safety, and service robots with particular concern for strengthening the mechanical engineering discipline.

Bio: Prof. Delbert Tesar, Chaired Prof., Emeritus, UTexas, Austin.

Prof. Tesar has been in research for 60 years, founded the broad concept of open architecture for electro-mechanical systems enabling plug-and-play assembly, repair, and refreshment in terms of highly certified components produced in minimum sets by a competitive supply chain. This concept applies at all scales of performance, cost, and response to command. The work was supported by $40 million of funding since 1980, produced 168 M.Sc. and 66 Ph.D. graduates, resulted in 40 patents for a wide range of applications (cars, robotics, trains, surgery, orthotics, trucks, aircraft, construction systems, etc.)

Today, that work concentrates on a full spectrum of intelligent actuators exceeding best commercial practice by 3 to 4 orders of magnitude. This result is equivalent in importance to electro-mechanical systems as the computer chip is to electronics and social media systems (to be the basis for Moore's law). Prof. Tesar also participated in several national science panels; i.e., the Air Force Science Advisory Board, The Army Science Board, and the NRC Space Station panel. He has given 650 presentations through his lifetime in Europe, Russia, China, South Korea, Brazil, etc.