From: h h
Sent: Saturday, April 30, 2022 12:20 AM
To: aiframework <aiframework@nist.gov>
Subject: Fwd: Initial Draft of AI Risk Management Framework

Feedback on the initial draft of the AI Risk Management Framework

As a NIST retiree from the Engineering Lab (EL), my interest certainly lies in applying the AI risk management framework (RMF) to autonomous robotic/intelligent systems.

For over 10 years since about 2000, I led a workshop called Autonomy Levels for Unmanned Systems (ALFUS) that was participated by Government and Industry. ALFUS modeled an autonomous system from three aspects: mission complexity, environmental difficulty, and human independence. In other words, the three aspects must be considered together for autonomy. Similarly, I'd also propose that the three aspects could be how the AI RMF be applied to autonomous systems, Please reference NIST Special Publications 1011 series and many additional conference papers for ALFUS.

I was also a main contributor to the 4D/RCS reference model architecture that was also developed in the EL (ref. NISTIR 6910 and https://library.villanova.edu/Find/Record/1949399). In 4D/RCS, a generic control node that employs sensory processing, world modeling, value judgement (VJ), and behavior generation functions is applied to a complex system that might include many control nodes, such as a manufacturing facility or a military combat and support system. I and colleagues applied 4D/RCS to a DARPA supported project called Air Domain Autonomous Control System Architecture (ADACSA) in 2020 through 2021.

The VJ function would be an ideal place to perform AI RMF. This would mean distributed AI RMF that addresses particular risk management issues for various nodes within a 4D/RCS-based system. The scopes of risks at the Pentagon are different from the risks that a combat vehicle commander faces.

Autonomous systems is an area that both presents unique challenges for and yields great benefits from applying AI. It would be great to see AI RMF includes and expands in the area.