Panel Session – Safety, Reliability, and Security of Autonomous Systems

September 2024

Session Context

Autonomous systems are becoming increasingly prevalent in many sectors, including transportation, healthcare, energy, and manufacturing. With their growing prevalence come significant challenges in ensuring these systems operate safely, reliably, and securely (SRS), especially when interacting with dynamic and uncertain environments. The risks associated with malfunction, system vulnerabilities, and unintended behavior make it imperative to focus on methods and technologies that can guarantee the robustness, trustworthiness, and ethical operation of such systems.

As such the International Workshop for Autonomous System Safety (IWASS) was created to facilitate discussions and knowledge exchange across industries and regions. It has since been collocated with ESREL three times with support from ESRA (Dublin 2022, Southampton 2023, Krakow 2024). In 2025 we plan to expand upon our participants from North America, so the workshop will be co-located with RAMS in January. However, we want to continue our good relationship with ESRA and ESREL and therefore we also propose a panel session on SRS of Autonomous Systems. We have had some experience with holding such panel sessions (Dublin 2022 and Southampton 2023).

Session Format

We propose a standard panel session under the current working-title *"Panel Session – Safety, Reliability, and Security of Autonomous Systems"*.

- Briefly summarize the key points from the last IWASS max. 10 min

- Introduce panelists approx. 5 min

- Moderated Q&A approx. 45 min. (Can of course be extend to fit the ESREL timeslots)

- Usually we encourage the audience to engage the panelists with questions or to instigate discussions. And involve the audience as much as possible.
- In the backhand we prepare some topics or questions for the panelists to discuss in case of poor audience participation to ensure that the session remains interesting.

Potential Contributors

As indicated, a significant portion of the IWASS participants are also ESREL regulars, and the most active and interesting participants or speakers are often on the panel. In addition, the idea to cooperate on this panel session with another potential ESREL special session on *collaborative intelligence application for safety-critical system* has been floated by Dr. Chiara Leva. This cooperation could expand the range of topics in this proposed panel session to include the SRS of human-system interaction of autonomous systems. Potential contributors and panelist are indicated partially based on previous ESREL panel sessions:

- Prof. Dr. Ali Mosleh, Director of the John. B Garrick Institute for the Risk Sciences, UCLA.

  - Potential panelist for this panel session.

- Prof. Dr. Ingrid Bouwer Utne, The Marine Technology Risk, Safety and Asset Management Group, Department of Marine Technology, NTNU.

  - Potential panelist for this panel session.

- Jun.-Prof. Dr.-Ing. Andrey Morozov, Networked Automation Systems, Institute of Industrial Automation and Software Engineering, University of Stuttgart.

  - Potential session chair for this panel session.
  - Potential panelist for this panel session.
  - Potential moderator for this panel session.

- Dr. Maria Chiara Leva, TU Dublin & ESRA

  - Potential session chair/co-chair for this panel session.
  - Potential panelist for this panel session.

- Dr. Christoph Thieme, SINTEF Digital

  - Potential session chair for this panel session.
  - Potential moderator for this panel session.