

# Special Session – Safety, Reliability, and Security of Autonomous Systems

September 2024

## Session Description

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 propose a special session on SRS of Autonomous Systems.

## Session Format

We propose a regular ESREL paper (including extended abstracts) session under the title *"Safety, Reliability, and Security of Autonomous Systems"*. Here any relevant autonomous system submissions to ESREL could be directed and we anticipate a few such submissions from the IWASS organizers and wider community.

We also have access to a whole host of people who are experienced in SRS of autonomous systems and could act as reviewers.

## Potential Contributors

As indicated, a significant portion of the IWASS participants are also ESREL regulars, as such it is likely that their submissions to ESREL might fit this session. In addition, we also expect some contributions from the organizers of IWASS, or their colleges for this special session:

- Prof. Dr. Ali Mosleh, Director of the John. B Garrick Institute for the Risk Sciences, UCLA.
- Prof. Dr. Ingrid Bouwer Utne, The Marine Technology Risk, Safety and Asset Management Group, Department of Marine Technology, NTNU.
  - Potential session chair for this special 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 special session.
- Dr. Christoph Thieme, SINTEF Digital
  - Potential session chair for this special session.
- Dr. Marilia Ramos, Garrick Institute for the Risk Sciences, UCLA
- Camila Correa-Jullian, PhD candidate, Garrick Institute for the Risk Sciences, UCLA
  - Potential session co-chair for this special session
- Joachim Grimstad, PhD candidate, Institute of Industrial Automation and Software Engineering, University of Stuttgart.
  - Potential session co-chair for this special session
- Spencer Dougan, PhD candidate, Department of Marine Technology, NTNU.
  - Potential session co-chair for this special session