

Call for contributions

Note: *On site and Online Options*

To accommodate many situations, we are offering the option for either physical presence or virtual participation. We would be delighted if all authors manage to attend in person but are aware that special circumstances are best handled by having flexible options.

Submission:

1. **Inform the Chairs:** with the Title of your Contribution

2. **Submission URL:**

<https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=PESARO+2026+Special>

Please select Track Preference as **PSRAI**

Special track

PSRAI – Performance, Safety and Robustness in Artificial Intelligence-based Systems

Chairs

Juliette Mattioli, PhD

juliette.mattioli@thalesgroup.com

Thales AI fellow

and

Bertrand Braunschweig, PhD

bertrand.braunschweig@ext.irt-systemx.fr

Scientific Advisor of the European Trustworthy AI Association

along with

The European Trustworthy AI Association

[Home – Trustworthy AI Association](#)

and

along with

PESARO 2026: The Sixteenth International Conference on Performance, Safety and Robustness in Complex Systems and Applications

<https://www.aria.org/conferences2026/PESARO26.html>

May 24 - 28, 2026 - Venice, Italy

Technical Committee

- Faouzi Adjed, PhD – IRT SystemX
- Bertrand Braunschweig, PhD – The European Trustworthy AI Association
- Yann Gaste – The European Trustworthy AI Association
- Christophe Guettier, PhD – Safran Tech
- Joseph Machrouh, PhD – Thales Land and Air Systems
- Juliette Mattioli, PhD – Thales
- Karla Quintero, PhD – IRT SystemX

Artificial Intelligence (AI) is increasingly embedded in critical systems, in various domain such as automotive, railways, aerospace, healthcare, defense to manufacturing where performance, safety, and robustness are mandatory. While AI-driven systems demonstrate remarkable capabilities, their deployment in high-risk

environments introduce complex challenges: unpredictable failures, adversarial vulnerabilities, ethical dilemmas, and the need for rigorous validation across dynamic operational conditions.

Ensuring the reliability, resilience, and trustworthiness of AI-based systems requires interdisciplinary collaboration among researchers, engineers, regulators, and domain experts. This special track seeks novel contributions that advance the state-of-the-art in measuring, modeling, verifying, and guaranteeing the performance, safety, and robustness of AI systems, spanning theoretical foundations, methodological innovations, and real-world deployments.

We welcome contributions that address (but are not limited to) the following key themes:

- **Foundations of Robust and Safe AI**
 - Formal methods for verification, validation, and certification of AI systems (e.g., machine learning, logic-based, symbolic AI, hybrid AI, generative AI, agentic, GPAI...).
 - Uncertainty quantification and probabilistic guarantees for AI decision under ambiguity.
 - Adversarial robustness and cybersecurity of an AI system: Defenses against evasion, poisoning, robbery and distribution shifts in training/inference.
 - Fault tolerance and resilience: Mechanisms for graceful degradation and recovery in AI critical systems.
 - Explainability and interpretability in safety-critical contexts, including causal reasoning and counterfactual analysis.
- **Performance Assurance and Benchmarking**
 - Metrology for AI: Standardized metrics and benchmarks for safety-critical performance (e.g., latency, accuracy, fairness, reliability, ...).
 - Testing and edge case evaluation: Systematic approaches to identify failure modes in AI constituents and AI systems.
 - Real-time monitoring and runtime assurance: Techniques for continuous validation of AI behavior in operational environments, and for continuous safety assessment.
 - Performance-safety trade-offs: Balancing efficiency with robustness in resource-constrained systems.
- **Safety-Critical AI Engineering**
 - Design principles for safe AI: Architectures that enforce safety principles.
 - Human-AI collaboration: Ensuring safe interaction between autonomous systems and human operators.
 - Safety cases and argumentation frameworks for AI-based systems (e.g., compliance with ISO 21448, IEC 61508, ARP6983 or other domain-specific standards).
 - Regulatory and compliance challenges: Aligning AI systems with evolving safety and ethical standards (e.g., AI Act).
- **Agent design for explainable behaviors**
 - System autonomy and architectures
 - Argumentation techniques, conflict resolution
 - Agent-based negotiation
 - Multi-agent and swarm robustness: Coordination and fault tolerance in decentralized AI systems
 - Reinforcement learning and collaborative policy
- **Robustness in Dynamic and Uncertain Environments**
 - Generalization and adaptability: Ensuring robustness across distribution shifts, domain gaps, and long-tail scenarios.
 - Lifelong learning and continuous validation: Methods for updating AI models without compromising safety.

- Planning under uncertainty, probabilistic techniques, belief states exploration, POMDP
- Physics/Geometric-informed Neural Network, neuro-symbolic and hybrid AI: Combining various AI technics with first-principles knowledge for safety.
- **Societal and Ethical Dimensions**
 - Bias, fairness, and accountability in high-stakes AI applications.
 - Transparency and auditability: Tools for regulators, insurers, and end-users to assess AI system trustworthiness.
 - Risk communication and user trust: Bridging the gap between technical guarantees and public perception. Responsible use.
 - Case studies and lessons learned from deployments in automotive, aerospace, healthcare, railways, or defense.
 - Appropriation, acceptability and learning curves with trustworthiness
- **Tools, Frameworks, and Industrial Applications**
 - Open-source tools for robustness testing, verification, or safety monitoring.
 - Industry use cases: Real-world deployments of robust AI in automotive, aerospace, finance, or critical infrastructure.
 - Standardization efforts: Contributions to emerging norms (e.g., CEN-CENELEC, ISO...) for AI safety.

These are only suggestions; we welcome papers discussing other issues related to Performance, Safety and Robustness in AI-based systems.

Important Dates

- Inform the Chairs as soon as you decide to contribute.
- Submission: April 04, 2026
- Notification: April 24, 2026
- Registration: May 6, 2026
- Camera-ready: May 6, 2026

Contribution Types

- Regular papers [in the proceedings, digital library] from 6 pages to 8 pages
- Short papers (work in progress) [in the proceedings, digital library] from 4 pages to 6 pages
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaia.org]
- Presentations: slide only [slide-deck posted on www.iaia.org]

Paper Format

- See: <http://www.iaia.org/format.html>
- Before submission, please check and comply with the editorial rules: <http://www.iaia.org/editorialrules.html>

Publications

- Extended versions of selected papers will be published in IARIA Journals: <http://www.iaiajournals.org>
- Print proceedings will be available via Curran Associates, Inc.: <http://www.proceedings.com/9769.html>
- Articles will be archived in the free access ThinkMind Digital Library: <http://www.thinkmind.org>

Papers Submission

- <https://www.iaiasubmit.org/conferences/submit/newcontribution.php?event=PESARO+2026+Special>
- Please select Track Preference as **PSRAI**

Registration

- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at <http://www.aria.org/registration.html>

Contacts

- Chairs
 - Juliette Mattioli (juliette.mattioli@thalesgroup.com)
 - Bertrand Braunschweig (bertrand.braunschweig@ext.irt-systemx.fr)
- Logistics
 - Steve McGuire (steve@aria.org)