

*Session 4 - Resilience and Assurance:  
Present, and Future (Chair: Wilfried Steiner)*

*Session Report*

*Rapporteur: Paulo Verissimo*

- 09:00 – 9:45 **Ravi Iyer**, "*Fast or Slow? Human-Inspired Self-Evolving Framework for Resilient AI Systems*"
- 9:45 – 10:30 **Robert Stroud**, "*Assurance cases: past, present and future* "
- 10:30 – 10:50 **Al Avižienis**, "An essential topic for our future work"

09:00 – 9:45 Ravi Iyer, "*Fast or Slow? Human-Inspired Self-Evolving Framework for Resilient AI Systems*"

- Role of LLMs/GPTs as a component of an ecosystem of work/production tools
- Making the most of “small” amounts of data (e.g.: the cognition decay and dementia prediction work)
- Reality:
- “Spectacular failures” - Sustainability (or lack thereof) of the “mass” approach to data-based computation: quantity lowers reliability

09:00 – 9:45 Ravi Iyer, "*Fast or Slow? Human-Inspired Self-Evolving Framework for Resilient AI Systems*"

- What can we learn from the brain's cognition adaptation mechanisms?
- Brain-inspired resilience – high resilience, low energy consumption, slow learning by reward/reinforcement, fully generative
- PURER – Perceive Update Reason Reflect Execute
- Intelligent and On-demand Compute Infrastructure -- suggesting changes in the supporting arch, rather than in the data processes?

9:45 – 10:30 Robert Stroud, "*Assurance cases: past, present and future*"

- On the several possible interpretations of “assurance”, and the impact on safety cases
- Alleged weight of regulation on innovation and progress: how to handle, whilst continuing to give guarantees and/or protection
- Prove you followed rule → Justifying why yr system is safe
- Compliance → Assurance
- Assurance cases evolution: Assurance 2.0: A Manifesto, Robin E. Bloomfield, John Rushby, 2021
- Examples of several guidance documents for assurance processes

9:45 – 10:30 Robert Stroud, "*Assurance cases: past, present and future* "

- Reflections on LLMs' failure modes, particularly recent agentic ones
- Real examples
  
- Concluding thoughts:
  - how to trust AI,
  - How to build an assurance case for AI-based systems

10:30 – 10:50 Al Avižienis, "An essential topic for our future work"

- Identifying a problem in several communities, including ours: enormous increase in quantity (papers, authors)
- E.g. TDSC--2004: 15 paps, 2025: 525 paps; Authors 12 -> 620
- ... And its doubtful impact on quality...
- Comments from audience confirming:
  - This is a wider problem, whose root is probably in the current incentive/reward system of academic activity.
  - If there is/are solution(s), that requires a global approach
  - DSN/WG10.4 community should discuss this



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## On the Quantitative PaperMetrics culture in research



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*About a side subject discussed at the meeting (ref. a LI post made some time ago):*

In my humble opinion, there are two sides to what's happening:

(1) the quantitative paper-metrics culture itself;  
(2) its use to evaluate/compare researchers/ faculty across areas or subareas.

(1) is *inadequate*,  
(2) is intellectually *dishonest*.