Measurement Sustainability: a sound enabler for Green AI?

Nowadays, the concept of Sustainability is gaining significant relevance in every human activity. Hence, it should come as no surprise the growing attention dedicated to this matter by information and communication technologies (ICTs). ICTs have a two-fold effect on sustainability. They are fundamental tools for developing and implementing more sustainable processes and products; nevertheless, the very use of ICTs has its own environmental impact.

Measurement systems are relevant manifestations of ICTs. Hence, it is extremely important to address the sustainability of measurements and their impact on the environment. In turn, it is also necessary to develop new measurement models that can contribute to a robust assessment of sustainability.

Starting from these considerations, in the talk, an innovative methodological approach aimed at modeling and evaluating the sustainability of ICT manifestations will be presented, with special regard to electronic measurement systems and their evolution towards Cyber-physical Measurement Systems (CPMSs), which holistically integrate measurement solutions with Artificial Intelligence (AI) ones.

Assessing the sustainability of CPMS makes it unavoidable to evaluate the environmental impact of AI-based solutions, due, for example, to the effort required to build large data sets, software libraries, and to train AI models. However, in the literature, there is a lack of systematic studies estimating how much these “actions” can be considered g*reen*.

To start bridging this gap, the final part of the presentation will open the discussion on whether the methodology proposed for evaluating the sustainability of measurement systems can also be applied to AI, paving the way for raising two main questions: is it possible to measure how *green* AI is? Is it possible to make AI *greener*?