Report on Prof. Giancarlo Fortino's talk at the Federal University of Rio de Janeiro, Brazil

By Claudio Micele de Farias

On April 28 2025, Professor Giancarlo Fortino from Universittà della Calabria visited Coppe at the Federal University of Rio de Janeiro to deliver a Distinguished Lecture titled "From Digital Twins to Generative Digital Twins: Towards a Novel Approach in the IoT Edge-Cloud Continuum."

In his talk, Prof. Fortino spoke of his research on the Internet of Things and Machine Learning fields leading to Generative Digital Twins. Starting from his experiences on design, implementation, and evaluation of Digital Twins (DT) and, more recently, of Opportunistic DTs, Prof. Giancarlo first provided a definition for the Generative DT (GDT) which embraces main distinctive aspects and potential of current and future Gen-Al-aided DTs. In particular, in this talk he disclosed the role of Gen-AI in conciliating the model and the data-driven approach for the development of DTs. Then, he analyzed the added value of main Gen-AI architectures for maximizing the performance of DTs operating in the IoT domain and deployed in the edge-cloud continuum. Finally, Prof. Giancarlo Explained how Generative AI (not necessarily LLMs) could be used to model Temporal series in order to make predictions from data, specially in the Smart Cities context. Also, that in some cases those tools had better performance than traditional Temporal series analysis methods. At the end of the talk, Professor Giancarlo showcased collaboration opportunities not only with his group but also with IEEE SMC, including the opportunity to open a SMC chapter in Brazil. The talk was inspiring and challenging. We thank Prof. Giancarlo for this opportunity.

The talk was video recorded and is available on Youtube at:

https://www.youtube.com/watch?v=SyZhnjqhidk

Below are some photos of the event:

Thank you. OK, just some words about SMC 'cause SMC sponsored the
distinguished lecture that SMC system and

from.
Then the middleware