INTERNATIONAL

INVITED SESSION SUMMARY

Title of Session:

Knowledge-driven development of digital twins in industries and service applications

Name, Title and Affiliation of Chair:

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Details of Session (including aim and scope):

The traditional approach to identify development of Digital Twins (DT) is based on representing on three dimensions. These dimensions are known as the *Physical* space, *Virtual* space, and the *Connections* between both spaces. Respecting this traditional approach, in this invited session, we are aiming at exploiting works that are not only addressing the previous three dimensions, but also are aiming to develop the *Services* and *Digital Twin Data* Dimensions.
In the context of industry 5.0, the *Service* dimension has considerable significance. One of the focal points is on including the domain and experts' knowledge into considerations. This also presents an opportunity for the emergence of *cognitive twins.*
In this session, we are proposing this opportunity to the researchers who are working on knowledge-driven applications of DT to come together share their works, contributions to the community.
Therefore, our scope and interests are as follows:

Scopes and Interests:

1. Ontology-driven developments of digital twins; Cognitive Twins.
2. Integration of the domain-knowledge in digital twin applications.
3. Development of connections between the Physical, and virtual space.
4. Knowledge-based engineering of the Service dimension of digital twins.
5. Extraction of virtual models such as Rules, Behavioural, Geometrical, and Physical laws-related constraints.
6. Development of services such as analytics, diagnosis of performance, and optimizations.
7. Digital Twin Data Management: works relevant to data engineering and interpretation, security, transformation and etc.
8. Architectural patterns for digital twins.
9. Application domains such as: healthcare, manufacturing, PHM, design, and other relevant and potential applications.

Paper Submissions & Proceedings:

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Important dates:

Submission of Papers: **03 April 2023**
Notification of Acceptance: **08 May 2023**
Final paper publication files to be received by: **29 May 2023**