



PRO-VE 2021

Smart and Sustainable Collaborative Networks 4.0

22nd IFIP Working Conference on Virtual Enterprises

2021, 22 -24th November

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PRO-VE 2021 Special Session

Semantic sensing services for Industry 4.0 applications in collaborative networks

Scope

Systems integration, cooperative communication and information processing technologies for enterprise operation represent some key focus in the new global market. These issues are closely intertwined to information processing and distributed information systems, where the knowledge technologies play a major role. This evolution context brings about the concept of smart services as next-generation services provided via all the possible technological channels but, at the same time, the challenge of a different vision of manufacturing operation and management.

The Factory of the Future (FoF) revolution, deeply related to the Industry 4.0, is thus focused on developing a smart physical environment where the production is interlaced with knowledge: matter and information as two faces of the same medal. It is the current trends of automation and data exchanges in manufacturing technologies that include development of cyber-physical systems, cognitive computing, cloud computing, Internet of Things among the most known technologies. The development of knowledge sharing for manufacturing operation led to important results in various domains practices: the development of accuracy and transparency in several industrial sectors, particularly the agricultural and transport industries. Simultaneously, other new challenges are arising and becoming subjects of research: the key necessity to enable data exchanges in the business ecosystem and the need to invest in new physical infrastructure and tools. **In collaborative and cooperative environments**, the enterprises have been exploring several aspects of their processes and services to determine which ones can be better managed through ICTs. Nowadays, these services are also facing the need of integrating physical and virtual objects through the exploitation of data capture and communication capabilities. To overcome challenges related to acquisition and analysis of a large amount of data, the Data Fusion strategy has gained focus as a data pre-processing phase to support the fast-growing data-intensive applications for collaborative enterprises network. FoF is using advanced technologies such as networking sensors, smart devices, sensing machines, robots, GPS technology which will allow enterprises to be more profitable, efficient, safe, and environmentally friendly. **This impulse is completely towards the development of cooperative services and applications in the context of collaborative networks**. These innovative services have to meet the requirements of a high degree of autonomous data capture, event transfer, network connectivity and interoperability as a support of the physical transformations. In order to optimise their knowledge processes and services, enterprise networks use acquired and innovative technologies, such as wireless network, remote sensor data acquisition, mobile information technology, services and processes architectures managing the operations of the enterprise network systems. Based on innovative services, this requires the conceptualisation and the formalisation of the models and methods that generalise proposed services in every heterogeneous system.

Session Organizers

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Topics/ Keywords

[Knowledge formalisation, Internet-of-services, Collaborative Network Information Systems, System-to-System communication, Systems Interoperability, Factory of the future, Industry 4.0, Cyber-physical System, Data fusion, multi-sensor data fusion, Artificial Intelligence]

Submission procedure

Special sessions are included in the main Conference and follow the same reviewing process.

Short abstracts submission (100-150 words): March, 15th, 2021

Full papers submission: April, 16th, 2021

Acceptance Notice: May, 31st, 2021

Camera Ready Submission: June, 20st, 2021

Acceptance of papers is based on the **full paper** (up to 8 pages). Each paper will be evaluated by three members of the International Program Committee.

When submitting on the web site, you have to indicate the name of the special session.

Submission procedure available on: www.pro-ve.org, with copy by email to the chairs of the special session.

Special Session Sponsored by

IFAC TC 5.3 "Enterprise Integration and Networking" (to be confirmed)