IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on

"DENSE - Data Integrity, Integration and Security Issues for Consumer Data in Industry 5.0"

Theme:

Future personalization services are one of the key aspects that differentiates consumers in Industry 5.0 from its predecessor. Also known as fifth industrial revolution is a co-operation between machine with intelligence and humans, i.e., leveraging on the artificial intelligence (AI) and cognitive based services. Such a collaboration is expected to help increase consumer value while improving the degree of industrial automation. In short, Industry 5.0 focuses more on cooperation than competition. In order to provide personalized services, the data from various sensors is linked to highlight the distinct characteristics of the product according to consumer preferences. A high-tech strategy to provide industrial automation along with personalized consumer services is to leverage the Internet of Things, which introduces the concept of symmetric innovation by democratizing the knowledge obtained using Big Data.

It is apparent that achieving personalization makes the data central to efficiency gains concerning Industry 5.0. With the emergence of microelectromechanical sensors (MEMS), smart devices, and the Internet of Things (IoT), more and more devices are being built for the future. It is easier to acquire or collect large volumes of consumer data; however, problems related to data integrity, data heterogeneity, real-time data analysis, and data security remain open. Furthermore, the consumer data needs to be kept into perspective for deriving industrial operations and end products. Therefore, the aforementioned issues can be summarized as data integrity, integration, and security to achieve agility, quality production, resilience and automation.

The goal of consumer data integrity, integration, and security in Industry 5.0 is to create a nexus between operations, preferences, and information technology to help improve the manufacturing process. Most of the attempts concerning Industry 5.0 have been made to improve human-machine collaboration, collaborative robots, and designing software for the automation process, however, less attention has been diverted to the exploration of data integrity, integration, and security techniques that include privacy protection, data heterogeneity, computational complexity, data quality, and platform development.

It is highly believed that data integrity, integration, and security will not only improve the productivity of industry but will also make the manufacturing and production sustainable while improving the convenience and preferences of the consumers. This issue explores the crossroads among researchers, practitioners, scientists, and developers from diverse domains to provide a solution to data integrity, integration, and security issues for consumer data in Industry 5.0. This special issue aims to receive high-quality original research papers addressing practical scenarios, models, and theories supported by extensive experimental analysis.

Topics of interest in this Special Section include (but are not limited to):

- Data Engineering Techniques for handling heterogeneity in Industry 5.0
- Privacy and Security Issues for consumer data and its integration in Industry 5.0
- Design of Hardware Systems for data integration in Industry 5.0
- Automating consumer data pre-processing and cleaning in Industry 5.0
- Consumer's metadata management and integration in Industry 5.0
- Framework design for improving data integrity in Industry 5.0
- Personalized Recommender Systems for consumer related services in Industry 5.0.
- Data Fusion techniques in Industry 5.0
- AI/ML based data integrity and integration techniques in Industry 5.0.
- Blockchain based consumer data security and privacy in Industry 5.0

- Intrusion Detection and Prevention techniques in Industry 5.0.
- Intelligent Data generation techniques to solve cold-start and consumer personalization issues in Industry 5.0.
- Data integrity and integration based sustainable manufacturing in Industry 5.0.
- Policies for data integrity and integration in Industry 5.0.
- Applications concerning data integrity and integration in Industry 5.0.
- Theoretical and applied theories for consumer data integrity, integration, and security in Industry 5.0

Important dates:

- End of submission of Manuscripts: **December 1, 2022**

- Expected publication date (tentative): June 2023

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Instructions for authors:

Manuscripts should be prepared following guidelines at: https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html and must be submitted online following the IEEE Transactions on Consumer Electronics instructions: https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html. During submission, the Special Section on "**DENSE- D**ata Int**e**grity, **I**ntegration and **S**ecurity Issu**e**s for Consumer Data in Industry 5.0" should be selected.

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