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IEEE Journal of Radio Frequency Identification

IEEE CRFID Technical Committee on Motion Capture & Localization

Special Issue on "Wireless Motion Capture and Fine-Scale Localization"

Location and motion awareness open new frontiers in society and industry. New applications are emerging in smart industry, logistics, smart city, smart healthcare, safety and security, smart agri-food, aerospace, and so on. These technologies range from transponder-based solutions (RFID, wireless beacons, etc.) to passive markers (chipless RFID and retroreflectors) to markerless, radar-based technologies. These techniques can be adopted alone or combined with other technologies to pursue positioning, tracking, or navigation through *sensor fusion*. Over the years, amplitude- and signal time-of-flight based techniques have been joined by phase-based techniques. Some of the best known of these techniques include radar-based techniques, synthetic aperture radar methods, Doppler-based techniques, mm-wave imaging and so on. More recently, wireless motion capture and fine-scale localization also benefits from machine learning and artificial intelligence to develop new methodologies particularly suitable in dynamic environment. However, many open problems and challenges have to be faced for these localization and wireless identification systems to achieve the reliability and accuracy required, especially in real-time applications. This special issue will collect works from diverse academic researchers and industry engineers to discern the state of the art in this emerging field. Current and future trends in the use of wireless, radar, and RFID technology will be explored for development, applicability, and performance improvement of location-awareness and motion-capture systems in many society and industry applications.

Topics include, but are not limited to, the following:

- Fine-scale Wireless Localization and Navigation
- RFID-based Positioning
- Wireless Motion Capture Systems
- Human Motion Tracking, Vital sign monitoring
- Gesture Recognition
- Real-Time Locating Systems
- RF/mm-Wave Imaging based motion and position tracking
- SAR and Radar-based Techniques
- Doppler-Based Techniques
- Tracking Techniques and Applications
- RF Sensor Fusion
- Hybrid Localization Techniques Machine Learning for RF localization
- Artificial Intelligence for RF positioning
- Vehicle, Drone, Robot Positioning, Tracking and Navigation
- RF Localization in IoT applications
- RF Localization for Industry 4.0
- Localization enabling Smart Applications
- Emerging positioning applications
- Localization for Safety and Security
- Positioning in Smart City
- Positioning enabling Smart Healthcare
- Localization for Smart Agrifood and Smart Agriculture

Important Dates:

Submission Deadline: September 1, 2021
First Review Due: October 15, 2021
Revision Due: November 15, 2021
Second Review Due: December 15, 2021
Final Manuscript Due: January 31, 2021
Publication Date: May 2022

Submission Guidelines: Authors are requested to electronically submit their original manuscripts through the IEEE Manuscript Central at https://mc.manuscriptcentral.com/jrfid, according to the format described at https://journals.ieeeauthorcenter.ieee.org/.

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