Call for Papers
Workshop WS02 – Advanced RF sensing tools in industrial automation: robust, sustainable and ethical designs

Organizers and Chairs

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FOCUS. Next generation industry, driven by emerging information technologies, will rely on advanced sensing tools as well as networked machines with increasing levels of intelligence and autonomy. Radio-frequency (RF) sensing is an emerging paradigm that transforms existing industrial wireless networks by adding sensing modalities to improve the perception of workers, monitor the specific industrial workflow, and the surrounding workspace. For example, through holographic and radar-based techniques radio signals are recorded in a phase-sensitive manner and visualized in 2D/3D to reconstruct or map the surrounding environment. New research opportunities will target the integration of RF sensing with distributed learning tool, and robust machine-level decision operations. Distributed Learning (DL) techniques, namely decentralized training (DT), federated or split learning (FL), are becoming crucial to enable challenging tasks in several workspace environments, improving production, safety, trustworthiness, privacy and data-ownership protection. However, potential misuse or possible function creeping which challenges ethical and moral boundaries should be considered. The workshop aims to put together original research papers on advanced algorithms for sensing and distributed learning in industrial environments.

TOPICS

- ❖ Radio-based vision, radar and holographic methods, image processing
- ❖ Human-robot advanced interfaces, free-space user interfaces
- ❖ Electromagnetics (EM), physics-driven body models in high frequency bands
- ❖ Smart reconfigurable antenna, beamforming and beam steering for radio sensing
- ❖ Sustainable, privacy and ethically compliant RF sensing based on DL/FL tools
- ❖ Data fusion and multi-domain techniques to improve the robustness of RF sensing
- ❖ Distributed AI tools for computationally feasible sensing and monitoring of industrial sites
- ❖ Applications in workplaces, smart-living Industry 5.0, location-based services
- ❖ Public awareness and social interaction studies, privacy threats and ethical designs

AIM

The ETFA 2024 conference brings together professionals from industry and academia to share cutting-edge concepts, recent developments, research results, and practical achievements in industrial and factory automation. The key goal is to foster the enhancement and application of scientific techniques, models, and tools that support the efficient design and operation of industrial and factory automation systems.

WORKSHOP FORMAT

Half day Workshop, based on solicited research papers.
These papers must report significant and innovative research and development results that will have a long-term impact on the field of research, with the potential for implementation. The final manuscripts must comply with the formatting requirements for ETFA 2024, with a page limit of 8 pages, and a presentation slot of 30 minutes maximum. The working language of the conference is English. For submission rules, please refer to the Author's Instruction on the conference website.
Accepted, registered, and presented papers will be copyrighted by IEEE and published in the conference proceedings. The proceedings will be available in the IEEE Xplore ®Digital Library. The final manuscript must be accompanied by a Workshop registration fee payment proof and it is mandatory that at least one author attends and presents the paper at the Workshop. Failure to adhere to these guidelines may result in paper exclusion from post-conference distribution via IEEEXplore by the ETFA 2024 Organizing Committee.
For any detail regarding registration to the Workshop, please refer to the Call for Workshops as well as the ETFA 2024 website.

AUTHOR'S SCHEDULE 2024

- ❖ **Workshop papers**

  Submission deadline ………………………………….. **May 26th**
  Acceptance notification …………………………………June 17th
  Deadline for final manuscripts ………………………… July 1st

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