



15th Advanced Doctoral Conference on Computing, Electrical and Industrial Systems
Caparica, Portugal – 3-5 July 2024
Technological Innovation for Human-Centric Systems

Special Session on Smart Technologies supporting Human-Robot Collaboration

Scope

Automation is not solely designed to replace human beings but rather to enhance their overall work quality and well-being. Industry 5.0 aims to establish a durable and human-focused industry which also involves robots' cooperation with human beings throughout cognitive and physical tasks. For robots to be successful in these tasks, it is critical that they possess empathy and an understanding of humans' intentions and emotions. Machine learning plays a crucial role in enabling robots to analyze human states and adjust their behaviour accordingly. The research challenges encompass diverse fields, including psychology, physiology, medicine and communication. The aim is to assess and enhance the collaborative human-robot team's effectiveness.

Session organizer

- Dario Antonelli (Politecnico di Torino, ITALY)
- Chrysostomos D. Stylios (Athena Research Center, Patras, Greece)

Topics / Keywords

- Feedback systems for understanding the intentions of humans
- Feedback systems for communicating the intentions of robots
- Bi-directional human-robot interfaces
- Design of neural interfaces for human-robot interactions
- Interactive learning for robust human-robot interaction
- Biomechanical modelling and analysis for collaborative robotics
- Modelling of intelligent human-robot systems
- Sensory integration for human worker intentions recognition
- Sensory integration for the identification of human cognitive stress in a robotic assisted team.
- Learning-based collaborative management of human-robot systems
- Applications of intelligent and empathetic robots in actual industrial activities.
- Organization of collaborative work with the support of machine learning
- Extended Reality supporting cognitive human-robot interaction
- Cognitive Digital Twin for human-robot interaction

Submission procedure

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

- Short abstracts submission (100-150 words): 2 Feb 2024
- Full papers submission: 1 Mar 2024
- Acceptance Notice: 15 Apr 2024
- Final version Submission: 26 Apr 2024

Acceptance of papers is based on the full paper (up to 12 pages). Each paper will be evaluated by three members of the International Program Committee. Being DoCEIS a doctoral conference, the first author of each paper must be a PhD student.

When submitting on the web site, you should indicate the name of the special session. Submission procedure via EasyChair available on: <https://doceis.dee.fct.unl.pt/>, with copy by email to the chairs of the special session.