Smart Interaction for Operators Friendly Robotics (SIOFR)

Proposed by :

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Short presentation:

In today's INDUSTRY 4.0 context, the growing need to improve performances and sustainability of working environment is looking forward to developing interoperable and service-oriented systems with real time capabilities. This is boosting the development and installation of decentralized reliable robotics systems with flexible cooperative capabilities. Automate daily tasks, combined with smart operators flexibility and robot capabilities , is driving the development of human-friendly robotic.

The new working stations/desk point on safe and dependable machines, operating in the close vicinity to humans or directly interacting with them in a wide range of domains. In this environment work "smart" operators capable to interact and act with complex robotics systems used for manufacturing operation. In particular, the technological shift from classical industrial robots, which are safely kept away from humans in cages, to robots that are used in close collaboration with humans, able to is facing major challenges that need to be overcome. On the other side, traditional human reliability models need to be enlarged in order to integrate and analyze new data coming from operator and collaborative environment. Operators' physical, cognitive and sensorial skills, effects of skills (ageing by time) on production's performances, operators' adaptability to the new

manufacturing context, effect of smart human competences and perceptive capabilities on system performances and safety have to be investigated in a pro-active approach.

The objective of the this proposed section is to collect contributions to share knowledge on design, control, safety and ethical issues, concerning the introduction of robots into everyday life and new worked capabilities required to conduct and collaborate with these robots, new operators capability in the fit for factory of future optimization.

In this proposed session, we invite contributions in both theoretical and applications based proposal in the field Smart Interaction oriented to Operator friendly Robotics (SIOFR). The topics of interest for this invited session include, but are not limited to:

- Human Friendly Robotics
- Robot Assisted Surgery
- Smart Operators Capabilities
- Human Reliability Assessment
- Physical Human Robot Interaction
- Collaborative Robotics
- Collaborative Industrial System
- Cognitive Human Behavior
- Cyber security
- Real time monitoring and control processes
- Cloud computing applications