Collaborative Intelligence and Safety Critical Systems Applications.

The European Commission's guidelines on ethics in artificial intelligence (AI), published in April 2019, recognised the importance of a 'human-centric' approach to AI that is respectful of European values. Efforts to prepare for the integration of "human-centric" AI into European innovation and industry are now underway. AIs should be able to collaborate with (rather than replace) humans. Safety critical applications of AI technology are "human- in-the-loop" scenarios, where AI and humans work together, as manufacturing processes, IoT systems, and critical infrastructures. The concept of Collaborative Intelligence is essential for safety critical situations, and it requires interdisciplinary approaches blending expertise across AI, Human Factors, Neuroergonomics and System Safety Engineering.

The topics covered in this session should be at the intersections of the followings:

1. Modelling the dynamics of system behaviours for the production processes, IoT systems, and critical infrastructures (System Safety Engineering);

2. Designing and implementing processes capable of monitoring interactions between automated systems and the humans destined to use them (Human Factors/ Neuroergonomics);

3. Using data analytics and AI to create novel human-in-the-loop automation paradigms to support decision making and/or anticipate critical scenarios;

4. Managing the Legal and Ethical implications in the use of physiology-recording wearable sensors and human performance data in AI algorithms.

Call for Contributions: Submissions are invited from researchers, industry experts, and policymakers on topics such as Human machine interface design, human reliability for human in the loop automation, Human Robotic interaction, and innovations in ergonomic design and safety of intelligent and autonomous systems.

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