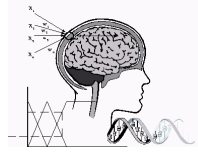# International

Innovation in Knowledge Based and Intelligent Engineering Systems

INVITED SESSION SUMMARY

Title of Session:

Responsible and Trustworthy Artificial Intelligence

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Details of Session:

In recent years the adoption of AI techniques has moved from the research domain to become a matter of public concern, as the potential applications of AI in various fields have been demonstrated. Although the hype has been fuelled by Generative AI on digital content, other applications - such as the recent success in reading the burnt Ercolano parchments - have highlighted the endless possibilities of these technologies. This has led to some open problems, the first of which is the level of work automation that artificial intelligence is generating. Secondly, we are witnessing a loss of control of the algorithms, which includes the loss of privacy of personal data and the introduction of some inconvenient biases that impact

the algorithm's output. Another relevant issue is the lack of transparency of most AI models and the difficulty for lawmakers and laypeople to understand AI due to the high level of knowledge involved. This situation affects trust in the adoption of AI technology. Finally, a crucial aspect is to ensure robustness and security of the AI technology in critical scenarios. It is therefore essential that AI methods are used and implemented with respect for the values enshrined in constitutions and international charters such as the EU Charter of Human Rights. AI should be precise, reliable, and explicable on a technical level. It should be accessible, usable, safe, respect privacy, and preserve user autonomy from the standpoint of the user. Socially, AI ought to be responsible, just, and ecologically benign. Finally, AI systems should be safe, helpful, and take care of the needs of people and society, also favouring sustainable development.

In such a context, the aim of this invited session is to explore the recent advances in the field of responsible and trustworthy AI approaches through the presentation of new research, ongoing work and survey contributions, from both a technical and theoretical perspective. It mainly concerns the explainability and interpretability of AI models, the fairness in calibrating AI models, the creation of robust, secure and safeguarding the users' privacy and data rights AI systems in multiple contexts.

Topics of the invited session include, but are not limited to:

- Explainable AI techniques for healthcare, business and economy
- Resilient to attack and secure AI systems
- Digital security and cybersecurity
- Safety, accuracy, reliability and reproducibility of AI in healthcare, business and economy
- Methods for privacy, quality and integrity of data, and access to data
- Innovative techniques for the avoidance of unfair bias
- Accessibility and universal design of AI systems
- Diversity, non-discrimination and fairness in AI systems
- AI models for societal and environmental wellbeing
- Sustainable AI
- Techniques for green AI
- Impact of AI technology in society and democracy
- Usability of AI methods
- Risks connected to intelligent Human-Computer interaction
- New methods for risk analysis of AI systems
- Ubiquitous health monitoring via IOT
- Personal smart devices for healthcare
- AI, law and human rights
- State budget and financial sustainability of disruptive technologies

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